FEBRUARY, 1939

ELECTRICAL SOUTH

UNIVERSITY OF FLORIDA
Library

ANOTHER American City — San Antonio — is air conditioned to a point of near perfection by nature. Nevertheless in the Robt. E. Lee Hotel the cautious management knows the value of evenly distributing the air in the guest rooms.

HUNTER Century 36" ceiling fans are being installed throughout the house.

HUNTER FAN & VENTILATING CO., INC.

Factory: FULTON, N. Y.

General Sales Offices:
Memphis, Sterick Bldg.

Eastern Sales Office:
New York, 92 Warren Street

Sales Offices:
DALLAS PHILADELPHIA BOSTON
DETROIT CLEVELAND ATLANTA
CHICAGO ST. LOUIS NEW ORLEANS
PITTSBURGH WASHINGTON

HUNTER Century

HOTEL ROBT. E. LEE
SAN ANTONIO

SCOTT J. STEWART
MANAGER

FOR ACCURATE AND EFFICIENT

NEW testing of service meters

SANGAMO

TYPE J-33 PORTABLE TEST METER

Providing the most modern design details, including minimum size and light weight, the new Sangamo Type J-33 Portable Test Meter is especially adapted to the accurate and efficient testing of watthour meters of the capacities usually employed in residential service. Designed with separate terminals for each of its three current coils, Type J-33 is in keeping with the high standard set by other Sangamo Type J Portable Test Meters.

Separate current terminals are used for each of three current ranges—1, 5, and 15 amperes.

SANGAMO

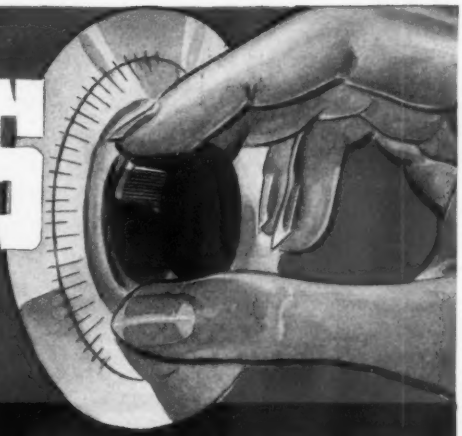
TYPE J-5 AND J-3 METERS

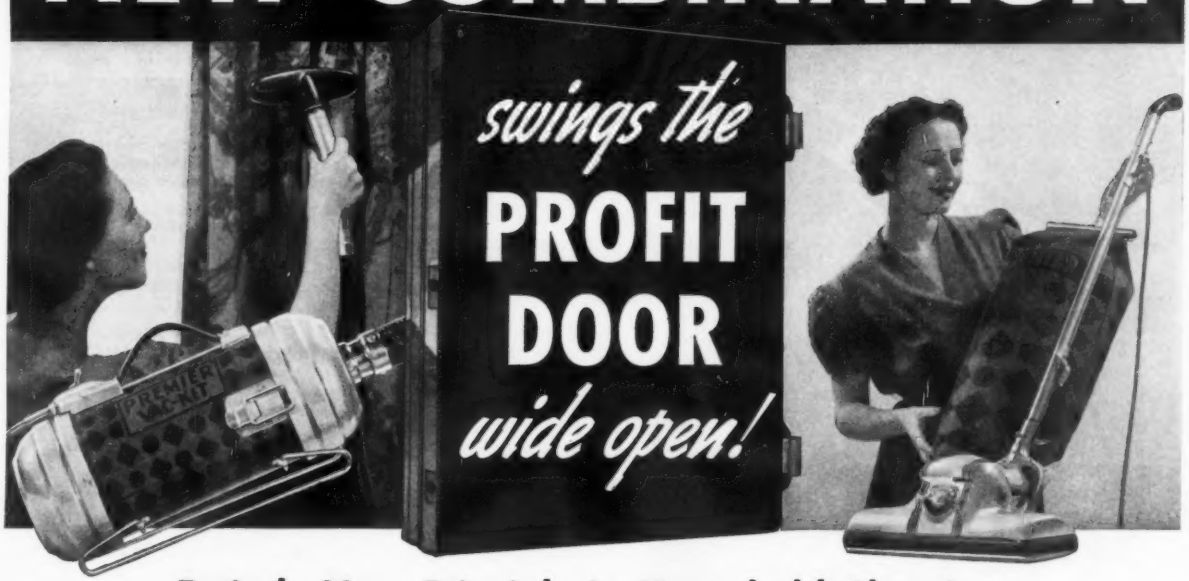
In both the J-5 and J-3 meters a selector switch is used for current coil selection. Type J-5 has five current coils rated at 1, 5, 10, 25, and 50 amperes; Type J-3 has three current coils rated at 1, 5, and 25 amperes. Silver contacts are used on current and potential switches. Because of their straight-line accuracy and ample current-carrying capacity for twice the rated load, Sangamo Portable Test Meters assure superior accuracy.

Selector switches of the J-5 and J-3 meters facilitate switching to any desired current coil.

SANGAMO ELECTRIC COMPANY SPRINGFIELD ILLINOIS

PREMIER'S *Brilliant* NEW COMBINATION





swings the **PROFIT DOOR** *wide open!*

Entirely New Principle in Household Cleaning Assures New Markets, New Sales, New Profits

One of the toughest problems of housekeeping has been solved—finally and completely! In solving it to the housewife's full satisfaction, Premier swings open a brand-new door to profits for the dealer.

In the fewest words, Premier has perfected *the one complete* vacuum cleaning ensemble. First: a powerful and efficient floor model that will lift out every particle of dirt from rugs and carpets . . . Second: the amazing new VAC-KIT, a featherweight, cylinder-type suction cleaner for gentle and thorough cleaning of drapes, upholstery, stairs —every fabric, every nook and corner above floor level.

This revolutionary new VAC-KIT, plus the indispensable Premier floor model *(a combination completely approved by GOOD HOUSEKEEPING INSTITUTE)* is available in four attractive groups—each combination costing scarcely more than a conventional floor cleaner.

And don't forget, there's a huge new market for the VAC-KIT by itself—even among housewives who already own satisfactory floor cleaners. Any way you look at it, it's an entirely new field of profit for progressive dealers.

One of FOUR fast-selling Combinations

Premier Floor Model PR30 with ball-bearing motor, Poro-Nap bag, double-action brush, searchlight, many other features. Regular price **$49.50**

Premier VAC-KIT, Model PR70, featherweight, cylinder-type, with 7 simple attachments for 101 above-the-floor uses. Regularly **$29.50**

TOTAL VALUE . . $79.00

CUSTOMER'S SAVING $19.50

BOTH FOR **$59.50** AND OLD CLEANER

THIS COUPON BRINGS ALL THE FACTS

Mail this coupon to PREMIER DIVISION, Electric Vacuum Cleaner Company, Inc., 1734 Ivanhoe Road, Cleveland, Ohio, for:

Complete information on Premier VAC-KIT and four combination offers.
Facts on attractive, low cost window display, available right now.

Name _____

Address _____

City _____ State _____ ES2-9

ADEQUATE WIRING — *means good* SENSE *and* DOLLARS *to* BOTH user and the Industry

The FUSTAT — helps the Industry sell ADEQUATE WIRING

WHAT IS THE FUSTAT?

It is a fuse to which a thermal cutout is added.

It protects like a fuse against short-circuits — even high resistance shorts such as occur in flexible cords.

It protects against permanent overloads, even when as light as 25%.

Yet it will not blow on motor starting currents of washing machines or other appliances.

Retails at 7½c

It has a base that guards against anyone robbing the circuit of protection.

It fits Edison base fuseholders through the use of an inexpensive adapter.

It shows user need for new circuits

Permanent overloading is positively prevented. Once the correct size Fustat has been installed it cannot be replaced with a larger size and tampering it in any way is virtually impossible. If additional circuits are needed the user cannot side-step the issue at the sacrifice of safety.

It reduces low voltage complaints

The user cannot load the circuit beyond the proper capacity of the copper. This prevents a voltage drop that is so frequently the cause of complaints about toasters, percolators and other appliances not operating efficiently.

It permits more outlets per circuit

Adding a maximum number of outlets is a perfectly safe practice because the Fustat guards the circuit against overloading.

It guards against blowing of main fuses

The branch circuit Fustat will almost invariably open on a short-circuit or overload, AHEAD of the main fuse or Fustat — because it cannot be replaced by an oversize fuse or readily tampered. When it does open to protect, only the *normal load* of one circuit is off the line instead of a user possibly having all of his lights and appliances out of service because the main fuse blew.

It permits adding more appliances to present circuits

A circuit can be loaded to approved capacity without needless blows and without sacrifice of safety. The long time-lag of the Fustat keeps it from blowing on motor starting currents or other harmless overloads.

It builds user confidence in doing things electrically

The Fustat helps sell the electrical way of doing things — for it generally permits users to add new appliances without being annoyed by needless blows . . . it assures proper operation of appliances because low-voltage cannot be caused by overloading . . . it reduces chances of users being frightened by shorted cords burning up, for the quick action of the Fustat on dangerous cord shorts—prevents spraying of metal, starting of fires, burning of users . . . it helps teach user that the protective device is a desirable safeguard instead of a nuisance . . . **thus it assists the whole industry to build towards bigger business and better times.**

It's just good business to sell, install and use Fustats

The FUSTAT

Retails at 7½¢ in 15 to 30 amp. sizes

For full information write to any of these firms

BUSSMANN MFG. CO., University at Jefferson, St. Louis, Mo.
JEFFERSON ELECTRIC COMPANY, Bellwood, Ill.
KIRKMAN ENGINEERING CORP., 121 Sixth Ave., New York City
NATIONAL ELECTRIC PRODUCTS CORP., Fulton Bldg., Pittsburgh, Pa.
UNION INSULATING CO., 27 Park Place, New York City

FEBRUARY, 1939

Volume 19 No. 2

ELECTRICAL SOUTH

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JOHN C. COOK, Sales Promotion Mgr.
W. E. COOGLER, Production Manager

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Published Monthly by
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Marietta and Atlanta, Ga.

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Entered as second-class matter at the postoffice in Marietta, Ga., under the Act of March 3, 1879.

Over 2,500,000 homes a week hear this *Better Light-Better Sight* program

To the left, Phil Spitalny, conductor of the G-E MAZDA *lamp Hour of Charm All-Girl Orchestra, and to the right, Miss Dorothy Thompson, who "spotlights the news" on the G-E radio program.*

GENERAL ELECTRIC MAZDA LAMP *"Hour of Charm"* WITH DOROTHY THOMPSON AND PHIL SPITALNY AND HIS ALL-GIRL ORCHESTRA ATTRACTS GROWING RADIO AUDIENCE

EVERY Monday evening from 9 to 9:30 EST, on a 58-station, coast to coast, N.B.C. Red Network, the G-E MAZDA lamp "Hour of Charm", featuring Dorothy Thompson, spotlighting the news, and Phil Spitalny and his All-Girl orchestra, is heard by an increasing radio audience. Recent estimates based on radio surveys indicate that more than 2,500,000 homes a week now listen to this Better Light-Better Sight program.

Additional evidence of the popularity of the "Hour of Charm" is that after one program alone, more than 50,000 people wrote in to Miss Thompson.

Since the Lamp Department of General Electric started sponsoring this program last fall, it is estimated that radio listeners have received approximately 106,250,000 Better Light-Better Sight messages featuring: **1**—*The low cost of light.* **2**—*The advantages of I.E.S. Better Sight Lamps.* **3**—*The fact that 100 watt MAZDA lamps cost only 15c.* **4**—*Light-Conditioning.* **5**—*The benefits of having a home lighting survey.* **6**—*Sight is priceless—good light is cheap.*

Because of the unique character of this program as a Better Light-Better Sight vehicle, many utilities are featuring it in their newspaper advertising, bill inserts, and in their showroom windows. General Electric Company, Dept. 166-ES-B, Nela Park, Cleveland, Ohio.

USE THE NEW BRIGHTER MAZDA LAMPS MADE BY

GENERAL ELECTRIC

Dealers Play Important Role in Alabama Power's

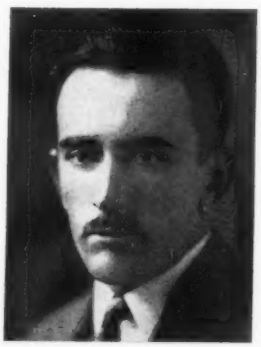
Better Lighting Campaign

THE marked success of the fall lighting campaign of the Alabama Power Company emphasizes the importance of properly informed dealers and dealer sales personnel in such sales programs; and lends weight to the statement made recently by Fred S. Dewey, chairman, Home Lighting Equipment Sales Committee of Edison Electric Institute, that "on the extent that the great body of retail sales organizations understand and advocate the principles of good and adequate lighting depends largely the progress of this new movement."

The fall lighting campaign of the Alabama Power Company, directed by John C. Tyson, Jr., lighting sales director, actually consisted of three simultaneous campaigns consisting of a dealer activity, a merchandise department sales activity, and a lighting personnel sales activity.

Although the quotas established for the entire program were approximately the same as those established for a small campaign in 1937, when only about 65% of quota was realized, sales completed during the campaign period in 1938 were more than seven times greater than those recorded in the previous campaign.

Some idea of the success enjoyed by this campaign may be obtained from the summarized results which indicate the sale of more than 320,366 Mazda lamps; 5,464 I. E. S. lamps; 3,790 drop-cord fixtures; 3,161 permanent fixtures and a considerable number of rewiring contracts. The actual retail value of merchandise sold was approximately $122,450, and a conservative estimate places the new load added during this sixty-day campaign at 5,958 kilowatts.



John C. Tyson, Jr.,
Lighting Sales Director
Alabama Power Co.

The success of this campaign has resulted in a marked improvement in morale for both Alabama Power Company and dealers' sales personnel. Indicative of the increased interest in the campaign is the fact that approximately 625 Alabama Power Company employees, other than sales department personnel, participated in this campaign in comparison with only 273 in the previous campaign.

It is believed that the several thousand new I. E. S. lamps and modern fixtures sold during this campaign will result in considerable improvement in public acceptance of lighting. The lighting advertising concentrated during the campaign period certainly stirred the market and is resulting in continued sales of lighting equipment. As an example of this "carry-over" influence, one dealer reports that store traffic customers have asked about, and bought from him, more than 75 I. E. S. lamps since the campaign closed.

Dealers who participated in the campaign are enthusiastic about it

Typical window display used in Alabama Power Co.'s branch offices.

Much of the success of the fall lighting campaign was attributed to the extensive advertising campaign, which was directed not only toward domestic customers but to commercial and professional prospects as well . . . . . .

and it is anticipated that many of them will become aggressively active in this field during the coming year and that such activity, combined with the improvement in public acceptance, will place the Better Light-Better Sight program in an excellent position in the coming year.

Prospectus for Dealers

The dealer phase of the lighting activity was completely described in a prospectus distributed among dealers throughout the Alabama Power Company's territory. This prospectus outlined the progress of the Better Light-Better Sight movement, directed attention to the advertising support which the program would receive from manufacturers and Alabama Power Company and indicated the number of contacts the company's lighting sales personnel would make with customers.

In addition, the prospectus carried an estimate of the immediate market for the sale of fixtures, I. E. S. lamps, wiring jobs, and Mazda lamps, and outlined what the various distributors had committed themselves to do to assist the dealers in tapping that market.

Included in the prospectus were eight specific suggestions for dealers to follow in order to realize the maximum returns from the lighting activity. These were:

"1. Purchase representative stock of fixtures (drop cord and ceiling), I. E. S. lamps, Pin-It-Up lamps, lamp bulbs, etc., to enable you to sell scientific lighting.

"2. Run tie-in advertisements in local newspapers identifying your store as headquarters for scientific lighting service.

"3. Take advantage of sales-training service available from your jobber and Alabama Power Company.

"4. Install window displays around the central theme of scientific lighting.

"5. Put up show-card signs inside your store calling customer's attention to the fact that 'Sight Is Precious—Light Is Cheap.'

"6. Hunt prospects among old and new customers.

"7. Follow up closely and immediately all prospects obtained regardless of source of such prospects.

"8. Report all sales promptly to power company lighting specialists on forms provided."

In cooperation with the dealers, the Alabama Power Company agreed to devote a large part of its newspaper advertising to lighting; to furnish dealers with release schedules of such advertising so that they might tie-in; to prepare and mail bill stuffers to each of 24,000 commercial and 114,000 residential and rural customers; to instruct its lighting specialists to advise with dealers as to stocks on hand that should be closed out and as to types of new merchandise with customer appeal; to have all its lighting specialists make available to all dealers, in the territory where specialist is working, a daily list of prospects obtained the previous working day; to confine its own sales to I.E.S. lamps and lamp bulbs, leaving the market for wiring jobs, ceiling fixtures, drop cord fixtures, and Pin-It-Up lamps entirely to the dealers; to offer sales training to all dealers who wish to train their personnel in scientific lighting.

The effectiveness of the dealer cooperation obtained during this campaign is indicated in the accompanying tabulation showing dealer sales in comparison with sales completed by personnel of the Alabama Power Company.

(*Continued on page* 66)

Summary of Dealer and Company Lighting Equipment Sales

Type of Equipment	Dealer Sales	Ala. Power Co. Sales	Total Sales	Retail Value	Increased Load
Mazda Lamps	225,285	95,081	320,366	$65,450	3,633 kw
I. E. S. Lamps	3,561	1,903	5,464	34,500	1,093 kw
Drop-cord Fixtures	3,790	-----	3,790	9,500	284 kw
Permanent Fixtures	3,161	-----	3,161	15,500	948 kw
Rewiring Contracts	1,505	-----	1,505	7,500	----
Total	237,302	96,984	334,286	$122,450	5,958 kw

Merchandising

IN THIS SECTION:
Should Utilities Continue Merchandising
Testimonial Selling Method Scores
Low Cost of Cooking Theme of 1939 Campaign

Lamp Makers to Launch IES Promotion Program .

FOLLOWING a tremendous upsurge of lamp sales in the last half of 1938 which saw over six times as many tagged lamps sold as in the first six months of the year, the Certified I.E.S. lamp makers are looking confidently toward 1939 spring sales with plans for the largest advertising campaign in their history.

In addition to the national magazine advertising of the cooperative, and the Mazda lamp manufacturers, newspaper advertising will be used for the first time, making for a more intensive I.E.S. lamp solicitation, directly in local retail channels.

Over 55 percent of the families in the United States will be covered by the campaign. Emphasis will be placed on local tie-ups to make a path for the buyer to household appliance firms, department and furniture stores, and other retail outlets handling I.E.S. lamps.

This campaign was announced when plans for the Certified I.E.S. Specifications Better Sight Lamp Makers exhibits at the Chicago and New York lamp shows were made known recently.

Following a practice established at the previous shows the I.E.S. lamp makers' exhibits will again be "Light Conditioned Living Rooms" using Certified I.E.S. Specification lamps throughout.

Upturn in Appliance Sales Noted in November Reports

Household washer shipments in November showed an increase over the same month in the preceding year for the first time since June, 1937, according to industry totals reported by J. R. Bohnen, executive secretary of the American Washer and Ironer Manufacturers' Association.

November's total was 84,192, an increase of 11.63 percent over November, 1937.

November ironer shipments were 8,226, compared to 9,548 in November, 1937, and 10,523 in October, 1938.

Household electrical vacuum cleaner sales in November nosed past the same month in the preceding year for the first time since August, 1937, totalling 119,506 compared to 118,780 in November, 1937, and 119,805 in October, 1938, according to an industry report issued by C. G. Frantz, executive secretary of the Vacuum Cleaner Manufacturers' Association.

Rural Development Program In North Carolina . . .

A STUDY of conditions existing along rural lines erected by the Carolina Power and Light Company led that company, which maintains headquarters in Raleigh, N. C., to the conclusion that a rural sales development program should be launched during the season of the year which is normally referred to as the "money season, for farm customers.

Tremendous investments have been made by this company in rural lines since 1935 and, in some areas, a relatively small percentage of customers actually have been connected in comparison to the number originally estimated.

Chattanooga Women Hold 3-Day "Electric Home" School

A three-day "Electric Home School" was held recently for members of the Kosmos Women's Club of Chattanooga, Tennessee. Their classroom was the club's own assembly hall. The program was entirely planned and executed by the women themselves, with the co-operation of the Tennesse Elctric Power Company and the Hotpoint Electric Kitchen Institute.

Emphasis was given to electric cookers and refrigeration by Mary Lowell Schwinn, director of the Hotpoint Electric Kitchen Institute. The program also included demonstrations and entertaining skits by members of the Tennessee Electric Power Company home service staff. These dealt with home lighting, electric table appliances, kitchen planning and inside weather control.

The campaign began September 26 and extended through December 25. At no period of the year is such a program more acceptable to farm customers than at this season when the results of their efforts since early spring are being turned into cash. The program presented an opportunity not only to increase the use of electric service among customers where the need is apparent and where an appreciation of electric service will be greatest, but it also presented an opportunity for the company to assist contractors, dealers and other allied interests in the electrical industry.

The objectives of this rural sales development program were threefold. These were: the extension of service to every possible unwired home existing along present rural lines; the connecting of all homes which were wired at the time rural extensions were made but which have not applied for electric service and the reconnecting of all idle services; and increasing the use of electric service among all present customers, especially those using fewer kilowatt hours than they are entitled to under their monthly guarantee charge.

Perhaps the success of this rural sales development program resulted, to a greater extent, from the utility company's recognition of the fact that regardless of the number and nature of interests solicited to assist them, the burden of promoting interest in the activity rested entirely with the company.

In order to concentrate as much sales effort as possible in the rural sales campaign, the services of rural sales representatives were augmented by those of regular residential salesmen. To assist this group in the location of prospective customers, a list of all extensions constructed since 1935 was compiled showing: the extension number, original estimate of customers, number actually connected, percentage of customers actually connected to original estimate, number of customers using over minimum, percentage using over minimum, number using under minimum, percentage using under minimum. With this information at hand, the rural sales representatives were in a position to determine at a glance those extensions which offered the greatest possibilities for development and which deserved prior attention.

The principal effort of these representatives was directed toward selling prospective farm customers on the idea of wiring their homes with a view of beginning immediately the enjoyment of "cheap" electric service. Company representatives worked closely with electrical contractors in an effort to expedite wiring installations but did not recommend any particular electrical contractor to the prospective customer.

In order to concentrate as much sales effort on the rural development program as possible, the company solicited the cooperation of electrical contractors, dealers, distributors and the personnel directing federal, state and county farm and agricultural activities in the territory served.

Electrical contractors were urged to actively solicit house wiring contracts in accordance with lists which were supplied to them carrying the names of prospective customers along existing rural lines.

Electrical appliance dealers also were supplied with lists of present customers along each rural line and these were supplemented with the names of new customers taken on as a result of the rural development program.

Every distributor approached for cooperation in the program agreed to exert every influence upon his dealer organization with a view of capitalizing on the concerted effort necessary to develop this market. One distributor, in cooperation with his manufacturer and dealer organization, planned a rural sales activity to run concurrently with the utility company's development program. Still another distributor equipped a demonstration truck with water pumping systems and confined his activities to the area served by the Carolina Power & Light Company throughout the period embraced by the campaign.

Small Appliance Display Used Effectively . . .

CHAS. Schneider's Sons, appliance dealers of Washington, D. C., have developed a tremendous volume in small electrical appliances. Much of their success is due to the attractive display which they have provided along one entire side of the store.

They built a series of four steps against the wall with shelves underneath for surplus stock. Curtains cover up the stock and yet give quick and easy access. The steps are covered with very blue velour and the background of the step is in gold, providing an attractive setting for small appliances.

This open display keeps these many small electrical appliances out where people can see them, handle them, and note the price of each item from the tag attached.

The displays are segregated according to types. That is, all electric irons are at one place, making a very nice mass display on one step; toasters are on another; and so on. A nice display of waffle irons, mixers and a miscellaneous assortment, occupying forty feet of shelving on the bottom step form a display which attracts attention of every customer.

An effective mass display of small electrical appliances.

Should Electric Utilities Continue the Energetic Sale of Appliances

This perennial question is discussed from a new angle by a well-known sales executive.

R. B. Roberts*
General Sales Manager
Florida Power & Light Co.

THE fact that this question is asked indicates that there is little or much doubt as to whether or not we as sales departments of electric utilities, should actively merchandise current-consuming devices.

Let's ask, first, "Who wants to know?" and then "Why do they want to know?" and see, if possible, how their wants serve our objectives.

Who is interested in this subject? Who wants to know? Well, since we are talking about appliances, lets start with the origin of the appliances—the manufacturer. Certainly, he is very vitally interested. His primary object is to make money. Many appliance manufacturers have no activities other than the manufacture and sale of electrical appliances. Others manufacture not only appliances but also many of the fabricated materials that are used in the production, transmission and distribution of electric service as well.

Manufacturers' Interest

The first group have no direct interest in load building as such. The second group have a very direct interest in load building. This single or dual interest is served best by manufacturing and selling at a fair profit the greatest possible number of appliances. Manufacturing unit costs decrease with increased sustained volume. Unit sales costs are less when the volume is bought by a comparatively few buyers who pay their bills promptly, than when sold to many buyers, some of changing credit standing and some of questionable credit standing.

As a manufacturer, therefore, my over-all unit profit may not increase, even if my volume increases if, in selling to many outlets instead of a few, my increased unit sales cost equals my unit saving in production cost. For instance, it may be more profitable for me to make and sell 5,000 units to the few buyers, than to make and sell 6,000 units to the many buyers. But, to go a step further, if those few big buyers did not and never did exist, I would either not be in the business or being in it, I would have to sell my product so intensively right down to the ultimate buyer, that my volume would be 10,000 units and my unit profit even greater than it is now.

All of which may indicate that unless appliance manufacturers feel certain that the volume of sales appliances will be very appreciably increased by the eventual exit of the utility from active merchandising then, as a group, they must be against such a trend.

How about the jobber? Like the manufacturer, he is interested primarily in making a fair profit. Some handle appliances and all electrical supplies used in building and maintenance of lines, and for the wiring of buildings, etc. Some handle appliances only. They are, in general, the manufacturers' representatives. For the same reasons as actuate the manufacturer, they, as a group, cannot favor any trend toward cessation of active merchandising of appliances on the part of the utilities unless they feel that their volume will be materially increased by such a move.

The dealer knows that the more he sells at the right price, the more money he can make. He is against anything that he feels decreases his volume or makes him cut his price. He may not clearly recognize all the elements that are working parallel with his efforts to increase his potential market and to bring the cream closer to the top in that market. He may not appreciate the fact that each of many dealers may do more business than if there were only one dealer. He may be so short-sighted as to believe that there is just so much business anyway, and therefore the more dealers there are to participate in filling this market, the fewer appliances he, himself, will sell.

Dealers First Raised Question

The dealer is probably the part of the industry that raised the question in point first and loudest. It was due to his cry, more or less justified several years ago that utilities stop merchandising, that plans for coordinating dealer and company merchandising were inaugurated by many utilities. However, I am relatively sure that today, where sound dealer coordination is practiced, few dealers who know what's going on insist that the utility go out of the merchandising business.

Some of the requirements of a sound dealer coordination plan are: that the terms not be easier than any legitimate dealer can extend; that trade-in allowances be no higher than the fair resale price of the traded-in equipment, minus the cost of reselling it; and that the utility sell appliances at a price which includes a fair mark-up in terms of ordinarily accepted trade practice.

These are fundamentals of sound merchandising and, as such, cannot work a hardship on the utility. In the second place, if these principals

*This discussion was presented as an address before the Executive Sales Conference of the Southeastern Electric Exchange, held in Atlanta November 12, 1938.

of fair business practice are not followed, regardless of the reason for not doing so, we will eventually be legislated out of the merchandising business entirely.

The dealer wants the utility to merchandise if by so doing the utility stabilizes the market by establishing and maintaining fair retail prices and terms. However, in general, there would be very few tears shed by leaders if the utility went out of the merchandising business entirely but continued to use its talents, money and time to sell the cheapness and value of electric service and to promote the sale and use and extended use of electric appliances.

Utilities Interested in Load

How about the utility? If you were to ask any man here why he actively sells appliances, he would probably say, "In order to build residential load at the lowest cost consistent with the results obtained." We, too, want to make a profit just like the manufacturer, the jobber and dealer. Admittedly, though, we are not in the merchandising business similarly to make a profit on the merchandise we sell. In this respect, we differ from the dealer, jobber and manufacturer. They are interested in making and selling or just selling the largest possible number of electrical appliances. We are interested, primarily, in having used by our customers the largest possible number of appliances. To obtain this end, we undertook at the start, and have ever since been selling appliances. It must, therefore, be our opinion that utilities should, for the present at least, intensively sell appliances.

Perhaps a reason why we should merchandise appliances is the fact that we have always done so. That, weak as it might at first seem, is a rather good reason. For one thing, many people, our customers, have become accustomed to buying their bread-and-butter appliance requirements from us, so it is a matter of expected service which we, in the interest of our customers, should continue.

Again, and much more important, is the fact that, having at the beginning assumed a major role of merchandising in the sole interest of pioneering, if you will, we have at least delayed the development of extensive and intensive merchandising by the people who, in other industries, have profitably done so and therefore we cannot now let go, nor can we let go until the sales end of the appliance business is just as completely developed and established as is the manufacturing end.

It must be self-evident that nobody but the utility can or will continue to sell appliances at a loss. If the manufacturers, jobbers and dealers are to carry on the sale of appliances, the retail sales price of the appliances must be sufficiently high for them to do the job at a legitimate profit.

Therefore, if in the interest of pioneering or sales promotion, the utility stays in the merchandising business but, at the same time, in the interest of maximum unit sales, desires the appliance end of the industry to function completely, then the utility cannot subsidize load building through the medium of cut-priced merchandise or excessively long terms or unsound trade-ins. I am firmly convinced that if our customers will not pay a fair price for an appliance, then the value of the service they expect to get from its use is not sufficient to keep them using such an appliance. A fair price for anything or any service must carry a fair profit for the man who makes it and the man who sells it. Subsidies never have been and never will be satisfactory substitutes for aggressive, creative salesmanship. On the contrary, by emasculating sales effort, they usually retard sales over the long run.

Subsidies Indicate High Prices

Subsidies are an admission on our part that standard prices are too high. In our own business, for instance, if we think $10 per month is a high bill for so-called complete electric service, we will have fewer complete electric customers than a utility of equal size who knows that $15 per month is dirt cheap for such service. Is it reasonable to expect somebody else to value your product of service more highly than you do yourself?

If a utility can make a fair profit on its merchandising operations, working on the same basis that legitimate independent dealers can, then there would seem to be good, sound reason for its continuance of aggressive merchandising, provided always that such operations be clearly distinguished from and do not detract from the aggressive sale of the cheapness and value of electric service. Let's never forget that while an electric range is an essential part of electric cookery, dependable electric service is an essential to electric cookery, too—just as gasoline is an essential to automobile transportation. An electric range is a pre-sale burden on the sale of electric service, just as an automobile is a pre-sale burden on the sale of gasoline.

Analogy in Oil Industry

Now, had this pre-sale burden for any reason been assumed by the oil industry, they would be out selling automobiles and might let the sale of gasoline take care of itself, more or less, just as we, having assumed the pre-sale burden of selling appliances, have more or less let the sale of electric service take care of itself.

If you rightly question this statement, look at so-called residential load building advertising. Its sole purpose is to sell ranges, water heaters, refrigerators and other appliances, just as if that were our business. We say buy an electric range because electric cooking is cool, clean, safe, etc. It costs so little to operate. Now, suppose we did not now and never had merchandised electric appliances. We, like the oil companies, would spend our time, talents and money on selling our own product. An ad of ours might extol the dependability and cheapness of our service, and as a "for instance" show how, when used with a refrigerator, it brings four hours of perfect refrigeration for the price of a cigarette.

We would sell more and better cooked meals the electric way, just as the oil companies sell more and better transportation the gasoline way. They sell the use of gasoline and the people buy automobiles and use them more. It must be reasonable that if we sell the use of electricity, the people will buy electric appliances and use them more. With the oil people, the automobile industry is making and selling cars: they are selling transportation and their gasoline. With us the manufacturers are making and they and we are selling ranges, etc., and we are kept so busy trying to help sell the manufacturers' ranges in order to help ourselves, that we have precious little time or forget to

(*Continued on page* 65)

Low Cost of Electric Cooking Theme of 1939 Campaign

"Guess again — electric cooking costs only one-half that much!"

PUTTING this message across to millions of American homemakers through the medium of heavy national advertising is just one part of the powerhouse campaign created for the benefit of electric range dealers and utilities in 1939 by the Modern Kitchen Bureau. It has been chosen as the theme of 1939 advertising activity because although millions know the low cost of electric cooking, a national survey shows that guesses of those who don't know average twice the actual average cost.

Basing the whole campaign on the knowledge that this mistaken idea of costly operation is the only thing that is keeping thousands of families from buying electric ranges, the Bureau intends to make these women stop guessing and realize that they, too, can enjoy electric cooking.

Starting with the national advertising—five full-page color advertisements which will appear in March, April, May and June issues of *The Saturday Evening Post*, the Bureau has gone on to build a completely set up sales machine for dealers and utilities.

Part II in this comprehensive program for re-educating American housewives will be national publicity in newspapers. This will be achieved through a special, four-page electric range news supplement, similar to the one utilized so effectively last year, which will appear just before or simultaneously with local electric range spring showings.

This special section, equally divided between electric range publicity written specially by cooking experts, and space for dealer advertisements, will help to blanket the whole country with the low-cost electrical cooking story.

Then, using the same key theme of "Guess Again," The Modern Kitchen Bureau provides a full set of tie-in sales tools that dealers and utilities can use to advantage. The number of tie-in helps has been increased this year.

First, there is a striking, colorful window poster which repeats the national advertising slogan, identifies the dealer or utility with the national advertising, and prompts prospects to visit showrooms and get proof of the low cost of electric cooking.

Jumbos of the national advertising repeat the selling theme. Colorful counter cards, keyed with the same message, and letterhead stickers that are baby editions of the cards give the low cost idea another chance to lodge in receptive minds. A special sheet of 6 suggested billboard designs have also been furnished to dealers and utilities by The Modern Kitchen Bureau.

A whole series of punchy, aggressive newspaper advertisements, de-

(*Continued on page* 65)

"GUESS AGAIN!"
LOW ELECTRIC COOKING BILL
ELECTRIC COOKING'S CLEAN-FAST-FLAMELESS
WORTH THREE WHAT I GUESSED
OVEN MEALS LIKE THIS ALMOST COOK THEMSELVES
DO WATCHING? I'M SURE MY GUESS IS LOW
THEN SMILE WHEN YOU SEE THIS MIDGET BILL
GOLLY! ONLY HALF AS MUCH AS I GUESSED!
ELECTRIC COOKING 1/2
SEE THE NEW ELECTRIC RANGES TODAY
fast clean low-cost cooking

At left, one of the full page advertisements to appear in the spring. Below, some of the special range newspaper sections used last year . . . .

Capital Journal
SYRACUSE HERALD
MODERN KITCHENS' THEME OF SPRING SHOWING ALL WEEK
SPRING SHOWING OF ELECTRIC RANGES GIVEN FOR HOUSEWIVES

Testimonial Selling Method Scores in Raleigh

IT was largely through the efforts of the Carolina Power and Light Company, in demonstrating performance, economy, and resultant rentability so far as electric kitchens were concerned, that two new FHA-sponsored apartment house projects in Raleigh, N. C., recently completed at a cost of approximately $1,500,000 and providing homes for 297 families, were made all-electric.

Officials of the Carolina Power and Light Company, particularly Paul Vecker, general sales manager; Raymond Snow, Raleigh manager; and Zack Bacon, sales supervisor, spent three months, while the title hunts for the property were proceeding, to thoroughly sell Mr. Underwood, architect for the development as well as president of the Wake Housing Corporation, formed expressly for this project, on electric kitchens as a service to future renters.

They obtained power bills and testimonials from every renter in an already existent Raleigh FHA-sponsored electrified apartment house to clinch their story, and the result was an outstanding example of selling electrical service on its merits.

The electric kitchens, identical in every apartment of both developments, are General Electric unit kitchens consisting of three-section steel wall cabinets, back splasher, sink, refrigerator, and range. Ventilating fans are built in. The equipment, supplied through L. W. Driscoll, Inc., distributor in Charlotte, was installed by the utility company.

The 297 kitchen equipments, constituting 10 carloads, represents one of the largest single orders on record.

Building permits for both structures were issued last April, and both were completed in the fall and were almost immediately rented.

The Cameron Court group includes three major buildings, and these in turn are divided into 13 groups of apartments, or a total of 147 three-, four-, and five-room apartments. The buildings are of red brick with dignified southern colonial white trim.

Each of the 13 units extends through the width of the building in which it is located, and all are separated by solid masonry wall, assuring positive quietness. The rooms are large, with cross and through ventilation. Large steel casement windows swing onto the shady courts, admitting a maximum of air and light.

Each kitchen is provided with garbage disposal chutes to incinerators. The central heating plant employs two automatic stokers with electric pumps to force steam out, and return condensation. Every apartment has a separate steel locker in the basement, and there is a servants' lavatory for each six apartments. Each unit has its own front and rear entrance. Average monthly cost to the renter is $14.69 per room.

The second development, called the Raleigh Apartments, is located

(*Continued on page* 17)

Exactly 297 electric kitchens similar to the one shown in the center above were installed in two large FHA-financed apartment buildings in Raleigh N. C. Actual bills and testimonials from every user in a similar building already equipped with electric kitchen equipment helped to sell the builder on the merits of electrical service . .

Every house needs

Westinghouse

YOURS for greater profi

THE DICTATOR . . . volume sales leader for 1939

The PACEMAKER LINE for '39

8 BEAUTIFUL NEW MODELS . . . STAR SELLING ADVANTAGES ON ALL!

Take in greater profits — sell the Pacemaker Line for '39! More beautiful than ever, the new Westinghouse Kitchen-proved Ranges are studded with every star feature ever dreamed of — the *right* features on the *right* ranges so that selling up is easy. Basic Kitchen-proved cooking features women like so well have been retained — *but now Westinghouse Ranges cook even better, cook still faster, and save more money!* And, prices on popular models are lower than ever!

The improved solid-top of the Corox unit is Columbium Alloy which tests show increases life expectancy 25%. 4000 watts step up the speed of the SuperOven. Biscuits now bake in 8 minutes from a cold-oven start! *Brand new automatic time control* for the Deep Well Economy Cooker on Regent and Dictator ranges eliminates watching.

Platform lights and Cooker on all except the apartment house range . . . Surface Unit Signalite on Emperor and Regent . . . Built-in Minute Minder on the Dictator . . . revolutionary new Menu Master Broiler Pan for Emperor, Regent, and Dictator . . . these are but a few of the star features. So —

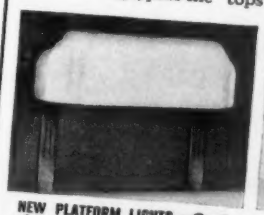
See the PACEMAKER Line Before you Sign for '39

See also the big advertising and promotional program that simplifies selling. Phone or wire your Distributor or get in touch with Dept. 9024, Westinghouse Electric & Manufacturing Company, Mansfield, Ohio.

Kitchen-proved

STAR FEATURES WOMEN WAN

Women demand modern time and laborsaving features *they* like and want in the products they buy. Take the lead—sell Westinghouse Ranges—the Kitchen-proved ranges with every desirable advantage, plus the "tops" in cooking performance.



NEW PLATFORM LIGHTS—Opal glass. Stationary — chrome supports. Standard on Dictator, Diplomat, Challenger, Conqueror. Adjustable lights on Emperor and Regent.

NEW SURFACE SIGNALITE—Glows brightly when any one of the surface units is on *any* heat. A permanent part of the timer housing on the Emperor and Regent ranges.

NEW MINUTE MINDER— Times cooking operations for periods up to 60 minutes. Built-in on the Dictator. Accessory for Diplomat, Challenger, and Conqueror ranges.

MENU MASTER BROILER PAN—For broiling, roasting, surface cooking. Large capacity — holds 12 chops. Smokeless. Easy to clean. Standard on Emperor, Regent, Dictator.

Westinghouse *Kitchen-proved* **Ranges**

"The Line of Least Resistance"

WESTINGHOUSE

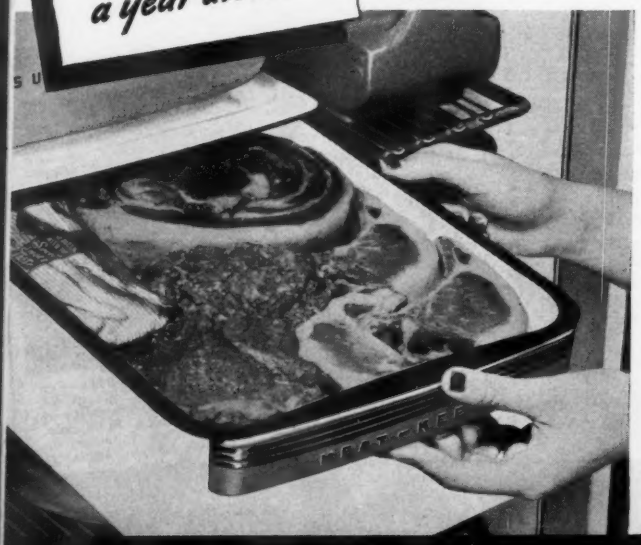
WITH THIS

Sensational New Refrigerator

with NEW TRUE-TEMP COLD CONTROL

Holds refrigerator temperature where you set it — regardless of room temperature fluctuations.

with NEW MEAT-KEEPER a year ahead



Slides in and out under the froster—has 15 pounds capacity, 50 per cent more than last year.

It's headline news for 1939! The new Westinghouse Refrigerator — pacemaker in better food protection, Kitchen-proved convenience, and long, low-cost operation — sales-maker and money-maker for dealers. Here's why —

STYLED TO SELL... New cabinet lines make it the most beautiful refrigerator in all Westinghouse history. New interior design combined with colorful Peasant Ware Food-saver dishes and water server make it more beautiful than ever inside.

EQUIPPED TO SELL... New features are packed with sales appeal for every prospect. For the first time in any refrigerator — True-Temp, the cold control that really *controls*. For the first time in any refrigerator — a covered, vented Meat-Keeper with 15 pounds capacity! For the first time a door liner of special white Micarta! And beside all this, the famous Economizer Mechanism with new cushion mounting — for the first time a truly "plug-in" refrigerator!

PRICED TO SELL... A new simplified line includes Emperor and Aristocrat models in porcelain and Dulux respectively, Hostess models in the medium price field, and the new Economy-Six for the budget shoppers. With this line you can meet any prospect's requirements.

ADVERTISED TO SELL... Westinghouse plans for 1939 include a powerful program of national magazine advertising, hard-hitting newspaper advertisements, displays, selling literature and everything you need to set the pace in your own territory against any kind of competition you have to meet.

If you are not already a Westinghouse Refrigerator dealer, get the details from your distributor — or write us direct.

Westinghouse Electric & Manufacturing Company
MANSFIELD, OHIO

Stay out in front with the *PACEMAKER*

ETS THE PACE!

IT'S THE
PACEMAKER
FOR '39

in better food protection
•
in greater convenience
•
in long,
low-cost operation

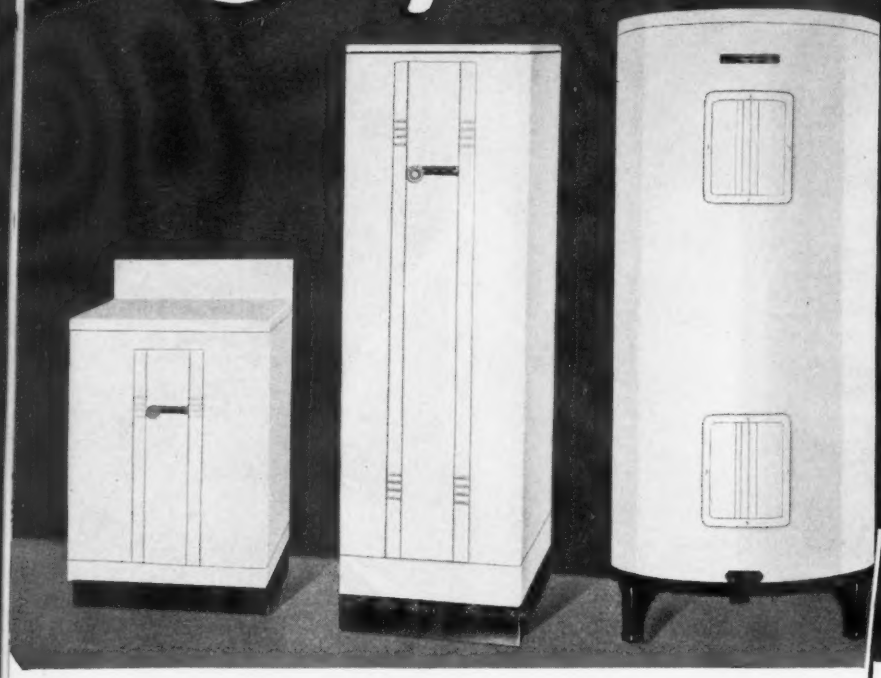
Kitchen-proved

Every house needs
Westinghouse

ER Westinghouse Refrigerator

Every house needs
Westinghouse

Take it from one who knows..



IT'S A CINCH TO SELL
Westinghouse Water Heaters

LOW SERVICE COST... HIGH NET PROFIT... DEALER-PROVED!

1,000,000 electric water heater owners are proof that public acceptance is here. Today more than 13,000,000 families can enjoy this modern service economically. YOUR locality is full of prospects.

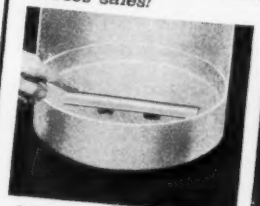
Westinghouse Water Heaters are easy to sell. Low operating cost, convenience of 24-hour service, cleanliness, modern safety—all are Home-proved! Your initial investment is small. You *keep* your profits; service costs average only 73c per unit — Dealer-proved!

Boost sales — round out your appliance business with the complete line of Westinghouse Water Heaters. Phone your Distributor for facts, promotional helps. Or, write Dept. 9030, Westinghouse Electric & Manufacturing Co., Mansfield, Ohio.

IMPORTANT: Westinghouse Water Heaters are manufactured complete at Mansfield, O., and Emeryville, Calif., for fast delivery to dealers everywhere.

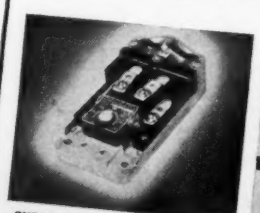
Home-proved PACEMAKING FEATURES MAKE SELLING EASIER

Every advantage, every selling feature of Westinghouse Water Heaters is backed by certified proof from homes like those in which your prospects live. Nothing can beat Home-proof — *it's proof that closes sales!*



SCIENTIFIC BAFFLE... Provides more HOT water at a uniformly hot temperature.

COROX UNITS... Put all the heat directly into the water. None is wasted.



SUPER ACCURATE THERMOSTATS ...Keep the water at the right temperature always. End work and worry.

PALCO WOOL INSULATION ...Keeps the heat in the water. Completely surrounds the water tank.

NEW! ECONOMATIC CONTROL

For territories where external control of the water heater thermostat is recommended. May be easily adjusted by the user to maintain any desired water temperature between 120° and 170°. A Home-proved economy and convenience feature that makes selling easy!

Westinghouse *Home-proved* Water Heaters

"The Line of Least Resistance"

What Clinches Refrigerator Sales?

Manufacturer's survey casts new light on this question.

A RECENT survey indicates that 60% of the electric refrigerator purchasers have already decided upon the particular brand or "make" they want before they open final negotiations with a dealer, reports R. C. Cosgrove, manager, Household Refrigeration Department, Westinghouse Electric and Mfg. Company.

This high average of "pre-sold" prospects is significant as it reveals the importance of national advertising and the power of a "name." It also indicates the necessity of selling strategy at the point of sale.

The dealer becomes a most potent agency, and an agency upon which the distributor and manufacturer must depend to present a strong and convincing enough presentation to swing the prospect's preference in case this prospect has already decided on a competitive line. The dealer represents the last line of defense.

In addition to proving that national and institutional advertising is of the utmost importance and is instrumental in influencing each 60% of the prospects, this survey also indicated some other valuable sales information.

The manufacturer wanted to find out, first of all, what influenced the sale and then just how the features of "reasons why" met the customers expectations after use in the home. Accordingly, they placed a questionnaire in the first 10,000 refrigerators sold this year. They received 1,026 replies, or a little more than 10%, which indicates the great amount of interest of the average homemaker in this particular major appliance.

In a large number of cases it was found that the percentage of favorable mentions of a feature after use were greater than given consideration before purchase. From this it may be assumed that lack of dramatization or convincing proof was made of the features merit at the time of sale or the purchaser just wouldn't believe until she used it herself. For example the Meat Keeper high lighted in advertising, was mentioned in 31 % of the replies as influence to the sale, yet was given 35% of the mentions after use. In a like manner low operating cost increased 27% to 31%; the Humidrawer, from 9% to 21%.

Here is a summary of the questions and answers:

Question: What method of refrigeration did you use previously?

Answer: Ice 71 pct.; automatic 22 pct.; none 3 pct.; no answer 3 pct, and kerosene 1 pct.

Question: What was your principal reason for making a change?

Answer: Savings 25 pct.; inconvenience of ice 24 pct.; electric refrigeration is better 14 pct.; avoid spoilage 10 pct.; other methods unsanitary 8 pct.; old too small 5 pct.; REA power now available 2 pct., and various others 2 pct.

Question: What fact impressed you most about your refrigerator that was brought out at time of purchase, or that you noticed in advertising?

Answer (on construction): Meat Keeper 31 pct.; exterior appearance 22 pct.; humidrawer 9 pct.; hermetically sealed 8 pct.; sturdy construction 5 pct.; interior design 5 pct., and miscellaneous 5 pct.

Answer (on operation): Low cost 27 pct.; quietness 10 pct.; cube release feature 5 pct.; temperature regulator 5 pct., and low running time 4 pct.

Question: Now that you have actually used your refrigerator, what features about it do you like best?

Answer: Meat keeper 35 pct.; low operating cost 31 pct.; quietness 27 pct.; quick freezing 27 pct.; Humidrawer 21 pct.; temperature control 20 pct.; cube release 10 pct.; miscellaneous 14 pct.

From the survey it also may be reasoned a high percentage of sales are not "sold from the ground up" or to put it another way, created by direct effort. It indicates a dependence on the part of the dealer to sell after the demand and brand preference had been established. It contradicts the belief of many retailers that advertising money, particularly national, has little value.

Testimonial Selling Method Scores in Raleigh . . . .

(*Continued from page* 12)

on eleven and a half acres of landscaped hillside. They comprise six separate buildings, and the simple horizontal lines of the white-painted brick units may be seen through groves of straight, tall pines in the enclosed court.

There are 150 apartments in the six buildings, with front and back entrances for each group of six or nine, general storage space, servants' lavatories, and laundry rooms. The apartments have from two to four and a half rooms, and indicative of rents being charged is a bachelor suite consisting of large living room, dressing room, bath, and electric kitchen for $37.50 per month.

Three Year Roaster Campaign Announced

COMFORTING news for electrical appliance dealers is the Modern Kitchen Bureau's announcement of a three-year campaign for the versatile electric roaster. The campaign includes a full array of sales helps built around a national advertising campaign.

Although the electric roaster has been considered an infant of the electric industry, it has grown from a relatively unknown appliance in 1934, when only 50,000 units were sold, into a promising giant. Some 250,000 electric roasters were sold in 1937. In 1938, the electric roaster moved up to fifth place in the number of sales of all appliances selling for $20 or more.

The Bureau's campaign should be even more comforting news for utility companies. Because this "Cooks Every Way—Goes Everywhere" electric roaster more than promises to be a potent factor in boosting utility revenue.

It is easy to see why. Here is a major electric appliance—consuming either 1,320 or 1,500 watts—which operates at the electric light rate.

It takes only a little figuring to compute what result several million of these electric roasters—in operation for a minimum of from fifteen to twenty hours each month—would have on utility revenue.

That several million will be in operation before very long is the opinion of manufacturers, who see a new "Golden Age" in appliance selling and revenue building ushered in by the electric roaster.

Backing their opinion to the hilt, these manufacturers, through The Modern Kitchen Bureau, are launching a minimum, three-year campaign for the electric roaster, beginning this year. First part of this campaign calls for considerable heavy national advertising.

This advertising will break in the March issue of *McCall's*—continue in that magazine and in *The Saturday Evening Post* and *Woman's Home Companion* with smashing regularity throughout the year.

The theme of this national advertising is "Easier Cooking—Easier Living." Terse, eye-attracting copy will strike home with the story of "cooks every way—goes everywhere" to an estimated 10,000,000 readers.

Each advertisement is designed to put electric roaster buying ideas in the minds of the people who live in the 97 out of 100 wired homes which still do not own electric roasters. Each is designed to pull good, live, presold prospects into dealer stores and utility showrooms.

The time selected by The Modern Kitchen Bureau for strong local promotions tying-in with this national broadside is the month of June, with a second electric roaster showing scheduled for November 15—December 15. Advertisements are keyed to this time—invite prospects to step into showrooms and discover "Easier Cooking — Easier Living" for themselves.

Second part of the campaign for 1939 will be newspaper publicity. This will be achieved through a special two-page electric roaster newspaper supplement. This special news section will be evenly divided between compelling selling copy for electric roasters, written by cooking authorities, and space for dealer and utility advertisements.

Tie-in newspaper advertisements with space for signature have been especially created to go with this special section.

The Modern Kitchen Bureau, rounding out its well-conceived electric roaster program, has also created a full array of sales helps as part of the promotional machine.

A vivid window banner, a counter card, jumbos of national advertisements, and a folder of national advertisements carry out the "Easier Cooking—Easier Living" theme, identify the utility or dealer using them with the national advertising, and invite prospects to enter showrooms and find electric roaster easier cooking and easier living for themselves.

Special radio announcements—from twenty-word spots to thousand-word, five-minute domestic science talks plugging electric roasters, will be available. A well-thought-out Selling Guide booklet, that instructs salesgirls—or men—in presenting the story of the electric roaster effectively, should prove another excellent sales tool.

An outline of the whole Modern Kitchen Bureau program, with ways and means of tying-into this revenue-building opportunity described in detail, has been prepared in the form of a complete dealer Plan Book.

See-for-Yourself HOW TO ENJOY
EASIER COOKING · EASIER LIVING
COOK WHOLE MEALS AT ONCE!
PRICED FOR EVERY ONE!
NO WATCHING!
EASY AS PIE TO CLEAN!
EVERHOT · GENERAL ELECTRIC · HESCO · PROCTOR · WESTINGHOUSE
ELECTRIC ROASTER
Cooks Every Way · Goes Everywhere

One of the full page advertisements that will appear in popular magazines with circulation totaling over ten million beginning in March . .

Contracting

IN THIS SECTION:
EHFA Wiring Plan Promoted in Florida
Wiring the Sam Houston Coliseum
Novel Proposal Eliminates Misunderstandings

EHFA Wiring Plan Promoted in Florida

SO successful has the Jacksonville Chapter, National Electrical Contractors Association, found their plan of rotating range and water heater installations among members of the association that this same policy has been adopted by the Chapter in connection with time payment plan wiring jobs executed under the Electrical Home and Farm Authority plan, reports W. O. Henderson, president, of the Chapter.

Under this new plan, the new business department of the municipal electric utility supplies two men as solicitors and the contractors association supplies one man, who solicit house wiring under the E.H.F.A. plan. Also, members of the association are constantly on the alert for prospects for house wiring and report them to this group of solicitors.

When a prospect for wiring under this plan is reported, one of the solicitors immediately calls upon the customer and explains the many uses of electricity. At the same time an adequate wiring plan and set of specifications is prepared with a list of materials, fixtures, and estimated labor hours and profit. This plan is prepared by the electrical contractor member of the group of solicitors.

If the prospect is sold on the wiring job, the plan and specifications are turned over to the secretary of the Jacksonville Chapter for distribution. The various jobs are allocated to the members of the association in rotation.

The member receiving the contract is given three sets of plans and specifications, and one list of materials, fixtures, labor and profit. One copy of the plan and specifications is submitted to the electrical inspector of the city of Jacksonville, one to the customer, and the other, of course, is retained by the contractor.

After the job is started, no changes can be made or materials subs.ituted because the plans and specifications have been filed with the electrical inspector, who has issued a permit for installation in accordance with the plans. After the job is completed, the electrical inspector signs the contractor's contract signifying that the job has been installed according to the plans and is ready for payment. Then the contractor returns the contract to the board who submits it to the E.H.F.A. The contractor then receives the entire amount payable for the work.

Under this plan, the customer pays the amount of the wiring contract plus 5% in payments distributed over a period of two years which are collected with his light bill. Although the plan has been

(*Continued on page* 36)

Florida Contractors to Meet in Orlando

THE annual meeting of the Florida Association of Electrical Contractors and Dealers will be held in Orlando, March 13, 14 and 15 with headquarters at the San Juan Hotel. A meeting of the executive board will be held on Sunday, March 12, according to F. J. McGinnis, secretary of the association.

Although a varied program is being prepared, it is expected that one of the principal subjects to come up for discussion before the meeting will be a proposed state licensing and inspection law which may be presented at the April session of the state legislature.

State Wage and Hour Bills Discussed . . .

ALTHOUGH it would appear that the employees of an electrical contractor whose purchases are made entirely within one state and whose work is done entirely within that state would be exempt under the Fair Labor Standards Act, as would the average retail electrical appliance establishment, recent developments in Washington have disclosed that wage and hour bills cut from the federal pattern but including all employees may be up for enactment before many state legislatures early in 1939.

The program is a carefully planned one, growing out of the recent conference in Washington attended by state commissioners of labor and other state representatives from nearly every state in the union.

The conference discussed plans and took formal steps to work out plans for state help in wage-hour act enforcement and also took steps looking to encouragement of state enactment of labor standards legislation in conformity with federal laws and standards.

Retail industries received special mention in the report of the committee on state wage and hour legislation at the conference. The pertinent paragraph read: "Most workers in purely intra-state employments, comprising chiefly the service and retail trades, are still without comparable protection, and it is generally recognized that these are occupations in which many of the worst abuses exist."

The Department of Labor has recommended that state wage and hour legislation be enacted as quickly as possible. It is also suggested that those states which have wage and hour laws for women amend them to include men.

(*Continued on page* 36)

Direct Solicitation Brings in Mill Motors for Repair

By L. H. Houck

HOW the Laycock Armature Works, of Tampa, Florida, established a new motor and armature business and developed a creditable volume of business in less than six months is an interesting example of what can be accomplished through direct solicitation.

The business was organized by W. E. Laycock, who has had more than twenty-five years experience in the motor repair and rewinding field, and his son, E. H. Laycock, also an experienced armature man. They decided the quickest way to get business was to ask firms with motors for their repair business and to lay their qualifications before them.

Their plan offered three distinct types of motor service. First, a regular service in which the motor is repaired in the regular course of business; second, a rush service, in which the repairs are expedited to suit the special conditions of the rush; third, a special 12-hour service. The last service was designed for fruit packing plants where replacement motors were unavailable in the majority of cases.

From the beginning, each day, some member of the firm spent a certain number of hours contacting prospective customers.

Outside towns were solicited and at all outside places a special shipping tag was left which was to be used for sending motors to Laycock. A tag was left for each motor so that in case of trouble all the owner had to do was to write his instructions on the tag, cut the motor loose and call the transportation company.

In Tampa and vicinity they picked up the motors in their own truck and delivered them as quickly as completed.

This preliminary solicitation brought work in surprising and profitable volume from the first week. It seemed to increase daily. While the temptation was great to discontinue direct calls, once the work was coming in, it was decided to devote a certain amount of time to new business. In a few weeks, it was necessary to hire help and at the end of six months four men were kept busy in the shop, while outside solicitation of business continued.

While the principle of making so many calls daily has been used by many businesses with good results, the fact remains that it will still produce business.

During the citrus packing season, packing houses run almost day and night and must have fast motor service in case of breakdown. To make a bid for this business the Laycock Armature Works installed a 12-hour system in which the packing houses would be assured of having their

The two motors shown at the right were part of an advertisement used to emphasize the fact that no motor is too small or too large for the Laycock Armature Works to handle. The shipping tags were specially designed to facilitate rapid handling of motors by truck lines. Complete instructions are marked by the shipper on the tag in the spaces provided.

motors back in running condition in 12 hours or less.

A circular letter was used to solicit this business and a yellow shipping tag and a price list was enclosed. This brought almost immediate results.

With motors in the shop sent under the 12-hour plan all employees worked straight through until the motors were on their way back to the plants.

While soliciting business, it was found that many called upon had the idea that only the larger motors were wanted, so the sales talk was changed to include small motors and special type motors. New motor sales were not forgotten in the rush and many calls for old motor repairs resulted in new sales.

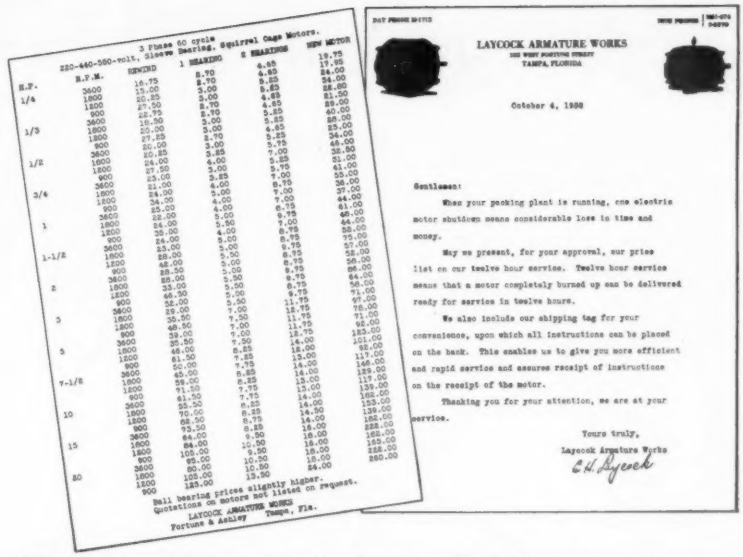
A conference with the several trucking companies which handled freight from nearby towns resulted in measures expediting the shipment of motors to Laycock. Truck executives when told of the plan for handling rush motors were quick to see that quick delivery would result in favorable advertising for them. Consequently motors with the familiar yellow shipping tag received special attention and were not submitted to long warehouse delays in transit.

While constructive sales work went on outside, the shop was hard pressed to keep up with the flow of work, since new tools and machinery seemed to be constantly needed. Purchase and installation required time.

Due to necessity for speeding up the work a machine was designed and built in the shop for coil winding. It was so arranged that nearly all types of coils could be quickly wound on it accurately. It proved so efficient that patent application has been made.

Needing something quick to bake smaller armatures in, a used electric stove was brought in and the motors were baked in the oven. This proved to be both economical and efficient and its use has been continued. The thermostat is used and the oven can be filled and left to properly bake during the night with perfect safety.

Accurate records of all motors handled were maintained from the very first motor. Office records contain the number, type, voltage and all other information on every motor handled. Office numbers and special marks were also put on every motor. These marks make it possible to ascertain if a returned motor has been tampered with by other persons.



3 Phase 60 cycle
220-440-550-volt, Sleeve Bearing, Squirrel Cage Motors.

H.P.	R.P.M.	REWIND	1 BEARING	2 BEARINGS	NEW MOTOR
1/4	3600	16.75	2.70	4.25	19.75
	1800	15.00	3.00	4.25	17.25
	1200	20.25	3.00	4.25	24.00
	900	27.50	2.70	4.25	34.00
1/3	3600	18.75	2.70	5.25	58.00
	1800	16.50	3.00	5.25	51.50
	1200	20.00	3.00	5.25	89.00
	900	27.25	2.70	5.25	40.00
1/2	3600	20.00	3.00	5.75	25.00
	1800	22.25	3.25	7.00	32.50
	1200	24.00	4.00	5.25	34.00
	900	27.50	3.00	5.75	41.00
3/4	3600	23.00	3.25	7.00	55.00
	1800	21.00	4.00	8.75	38.00
	1200	24.00	5.00	7.00	37.00
	900	34.00	4.00	7.00	44.00
1	3600	25.00	4.00	6.75	61.00
	1800	22.00	5.00	9.75	46.00
	1200	24.00	5.50	7.00	44.00
	900	35.00	4.00	8.75	58.00
1-1/2	3600	24.00	5.00	8.75	75.00
	1800	25.00	5.00	9.75	57.00
	1200	28.00	5.50	8.75	58.00
	900	48.00	5.00	8.75	58.00
2	3600	28.50	5.00	9.75	86.00
	1800	33.00	5.50	8.75	84.00
	1200	46.50	5.50	9.75	71.00
	900	52.00	5.50	11.75	97.00
3	3600	29.00	5.50	12.75	76.00
	1800	35.50	7.00	11.75	71.00
	1200	48.50	7.50	11.75	98.00
	900	59.00	7.00	12.75	123.00
5	3600	35.50	7.50	14.00	101.00
	1800	46.00	8.25	12.00	92.00
	1200	61.50	7.25	15.00	119.00
	900	80.00	7.75	14.00	146.00
7-1/2	3600	61.50	7.75	14.00	129.00
	1800	55.50	8.25	14.00	117.00
	1200	70.00	8.25	14.50	139.00
	900	88.50	8.75	14.00	162.00
10	3600	73.50	8.25	16.00	222.00
	1800	84.00	9.50	16.00	165.00
	1200	105.00	9.50	16.00	163.00
	900	95.00	10.50	16.00	218.00
15	3600	80.00	10.50	24.00	280.00
	1800	105.00	13.50		
	1200	125.00			
20	900				

Ball bearing prices slightly higher.
Quotations on motors not listed on request.

LAYCOCK ARMATURE WORKS
Fortune & Ashley Tampa, Fla.

LAYCOCK ARMATURE WORKS
TAMPA, FLORIDA

October 4, 1938

Gentlemen:

When your packing plant is running, one electric motor shutdown means considerable loss in time and money.

May we present, for your approval, our price list on our twelve hour service. Twelve hour service means that a motor completely burned up can be delivered ready for service in twelve hours.

We also include our shipping tag for your convenience, upon which all instructions can be placed on the back. This enables us to give you more efficient and rapid service and assures receipt of instructions on the receipt of the motor.

Thanking you for your attention, we are at your service.

Yours truly,
Laycock Armature Works
E.H. Laycock

This direct mail letter and price sheet for standard motor repair operations proved most successful in bringing in new business . . . .

Motor Records Maintained

Office records of the nameplate data are important when motor trouble is telephoned in by a customer and facilitates the finding of a replacement motor when it is needed.

Now after six months a stock of motor bearings has been put in covering virtually all the standard types used in the territory. Several industrial plants have turned all their motor work over to the new firm and from far and near come motors by truck tagged with the familiar yellow shipping tag.

Good tools are essential to good workmanship. E. H. Laycock is shown here at work over the 11-inch tool makers model lathe . . . . . .

Louisville Group Plans Wiring Promotion . .

A program of wiring promotion is soon to be organized in Louisville, Kentucky, under the auspices of the Electrical Clearing House of Louisville, Inc., according to W. D. Roach, secretary-treasurer of that organization.

Novel Lighting Fixture Proposal Eliminates Misunderstanding

By O. D. Hall

A NOVEL and effective method of submitting proposals for lighting fixtures to prospective customers was originated recently by B. H. Hartley, illuminating engineer of the Oklahoma Electrical Supply Company, Oklahoma City. The plan includes a photostat of a large sheet of cardboard upon which illustrations of the proposed lighting fixtures have been pasted.

Describing the plan which he has used to such good advantage, Mr. Hartley says:

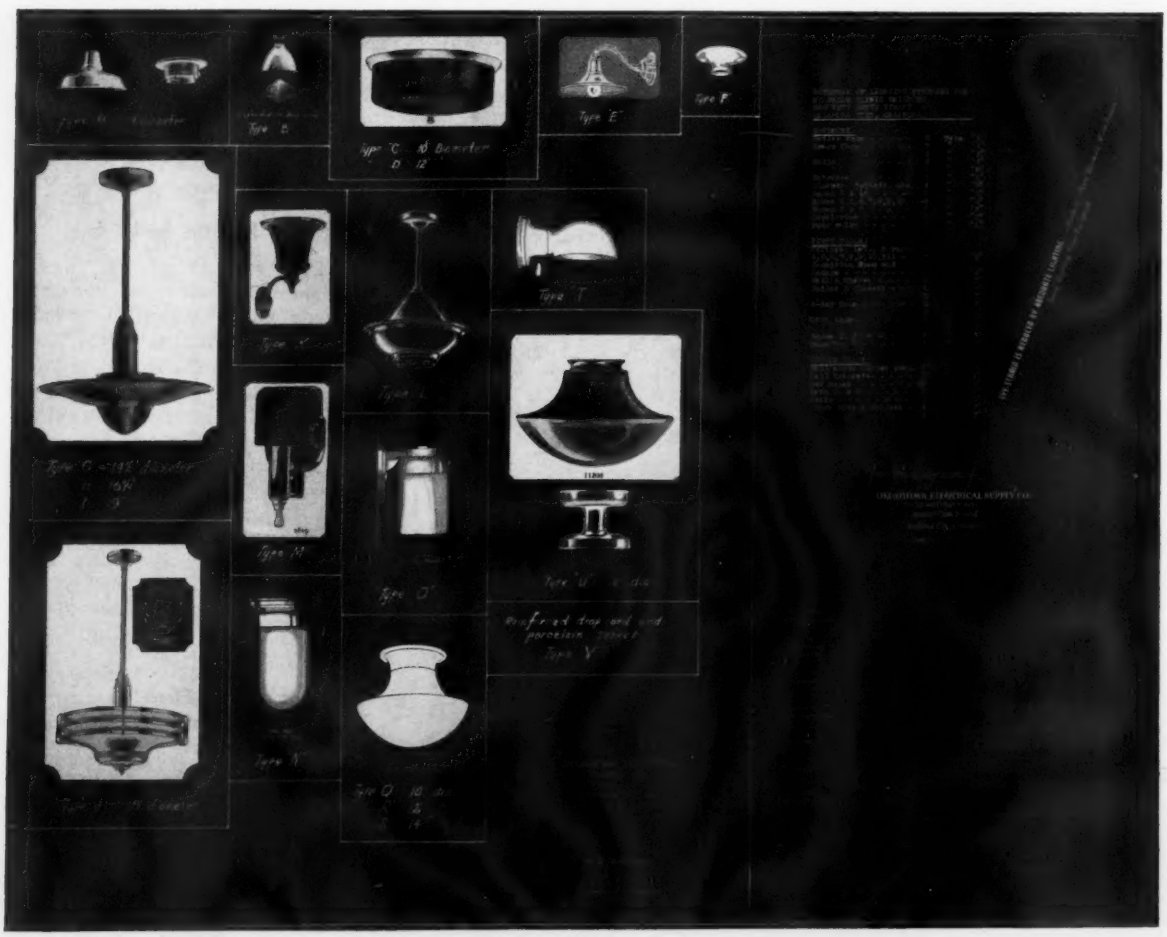
"In addition to the illustrations of the fixtures which we are suggesting to our customer, the photostat includes an itemized list at the right, and beneath this is a copy of the letter submitting the bid or proposal with a form for acceptance at the bottom.

"The itemized list shows the various rooms and locations at which fixtures are to be installed. Each item carries a type number which corresponds with the type number given under the illustration of that particular fixture.

"We find that a customer appreciates a detailed presentation of a lighting fixture proposal," continued Mr. Hartley. "The system saves much time on the job by assisting the workmen in properly locating various types of fixtures and determining the number to be used in any room or location. This plan incorporated in a contract makes the document complete and easily understood by all concerned, regardless of whether or not they are familiar with lighting fixtures."

Mr. Hartley stated that the plan is used only where a majority of the fixtures are pictured in catalogues. A number of fixtures may be illustrated by drawings, but where a majority of the illustrations cannot be obtained from catalogues, the blue print method is used. The black and white print method is more simple than the blueprint procedure. It only requires about an hour to prepare and the cost does not exceed one dollar.

(*Continued on page* 65)



When considering protection against current diversion losses, there are two vitally important questions you want answered. First, the performance of the equipment and second, the company who makes the equipment. Both questions are answered conclusively every day by scores of utilities and many thousands of installations throughout the nation. The story of performance is immediately available to all who are interested. Write for details.

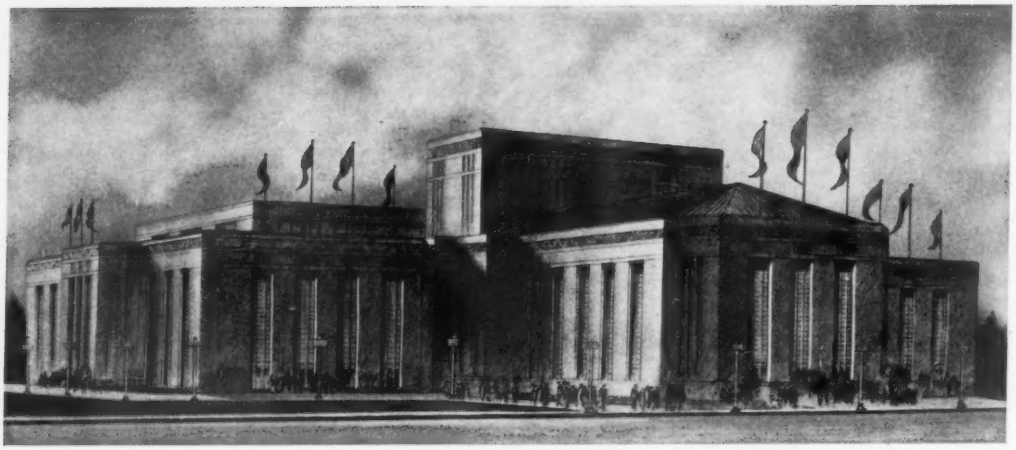
Your file of Service Entrance Equipment data is incomplete without Corcoran-Brown catalogs. On request.

Electrical Department

CORCORAN-BROWN LAMP DIVISION

THE ELECTRIC AUTO-LITE COMPANY

4900 Spring Grove Avenue Cincinnati, Ohio



The huge Sam Houston Coliseum, recently completed in Houston, Texas, provides indoor facilities for such outdoor activities as rodeos, circuses, and horse shows. Wiring has many novel features.

INTERESTING PROBLEMS ENCOUNTERED IN WIRING

SAM HOUSTON COLISEUM

VARIED indeed are the requirements which had to be anticipated in designing the wiring installation in the huge new Sam Houston Coliseum in Houston, Texas, formally opened in the summer of 1938.

Provision to supply all electric current requirements of rodeos, horse shows, circuses, automobile and other shows, ice skating, manufacturers' exhibits, national conventions and theatrical performances, all had to be incorporated in this job, handled most efficiently by J. S. Copeland Electric Company, Houston.

The Coliseum is really composed of two distinct auditoriums, the larger of which is approximately 370 feet long and 250 feet wide, forming the Sam Houston Coliseum proper. Separated from the main auditorium by a huge stage is the Music Hall, a theatre acoustically perfect and modern in every detail. The stage is so constructed that it may be used for either or both auditoriums. The Music Hall has seating capacity for 2,200 persons, while the main auditorium, with its surrounding balcony, will seat about 18,000.

To provide the twenty foot-candles of light desired on the floor of the Coliseum, sixty-seven 1,000-watt lamps were installed on 24-foot centers, 50 feet above the floor. These are aluminum-spun units, with high intensity reflectors. Wiring is such that alternate lamps can be used, or any group in any section of the Coliseum may be cut in or out.

Two cat walks, fifty feet above the floor, extend the length of the Coliseum, with panels on each for lighting circuit control. Magnetic contact controls for all lighting are operated from the stage.

Photoflash Circuit Provided

A feature in the electrical installation of which the engineer is very proud is the photo-flashlight set. A photographer can set up flashlights all around the building and touch them off from any one point. This is provided by a special circuit with receptacles placed in numerous convenient locations so that it can be controlled from any point desired. This feature made a hit at once with newspaper photographers.

In the center section of the Coliseum is a removable hardwood floor, of oval shape, about 120 feet by 160 feet in size. This floor may be removed in sections and stored in the basement when it is desired to stage a rodeo, indoor circus and other events requiring a dirt floor. With this floor out of the way, there is an arena large enough to present a three-ring circus or a rodeo comparable to those held in Madison Square Garden in New York City.

Plug-In System Used

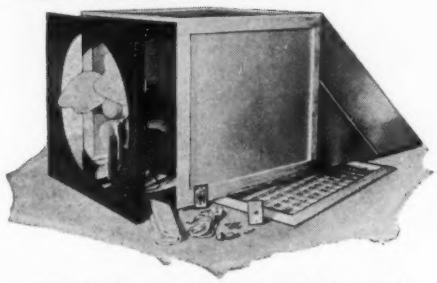
Around this oval section at about equal spaces are twelve plug-in boxes. Four 500,000 cm wires were run in fiber ducts to each box. These will provide any combination of voltage of 110 or 220, single or 3-phase, at any box. There is provided also a separate duct into each box for the installation of any future service wires that might be required.

These plug-in boxes provide a convenient and economical means of operating any type of electrical equipment from the floor which may be used in shows or exhibitions.

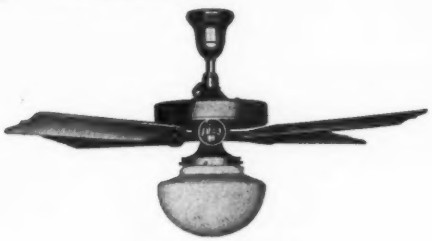
The joint stage is among the largest in the Southwest, possessing a proscenium opening 60 feet by 28 feet. Clear space on the stage is 92 feet by 44 feet. A drop curtain in the center of the stage can

(*Continued on page* 36)

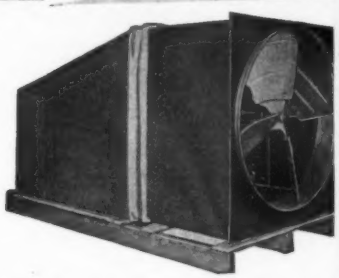
AIR COOLING EQUIPMENT



VIKING Attic Fan Package. Efficient streamlined design, with many new features. Complete kit includes all parts for quick, easy installation. Capacities 7,500 to 16,500 C. F. M.



Hunter Adaptair Hotel Type 52" Ceiling Fan. Instantly adjustable for either up or down draft.



REX AIRATE new attic ventilators. Complete, ready to install, with automatic ceiling shutters. Quiet and economical in operation

Advertisers In This Section:

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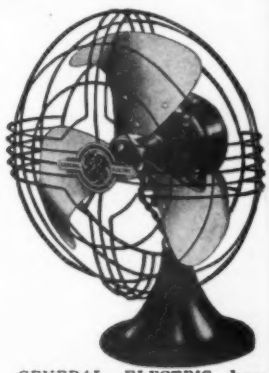
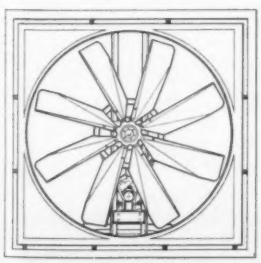
American Coolair Corp.
Autovent Fan & Blower Co.
Buffalo Forge Co.
General Electric Co.
Hunter Fan & Vent Co., Inc.
Shepler Stove Co., F. W.
Signal Electric Mfg. Co.
Victor Electric Products, Inc.
Viking Air Conditioning Corp.

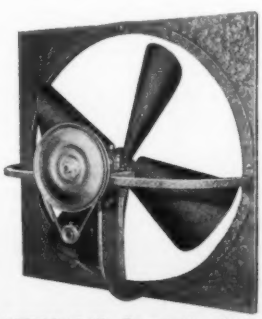
Victor No-Draft Fan featuring the sensational new "Miracle Breeze" Ribbon test proves amazing no-draft performance.



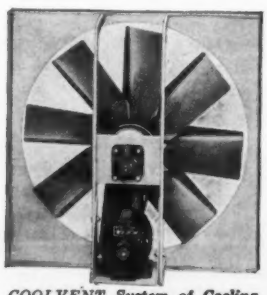
GENERAL ELECTRIC large Super-Quiet Fan that provides large volume of air movement with amazingly quiet operation.



The new, improved COOLAIR home cooling fan in its exclusive spring mounting. Re-designed and more attractively priced, this famous fan is expected to set new sales records this year.

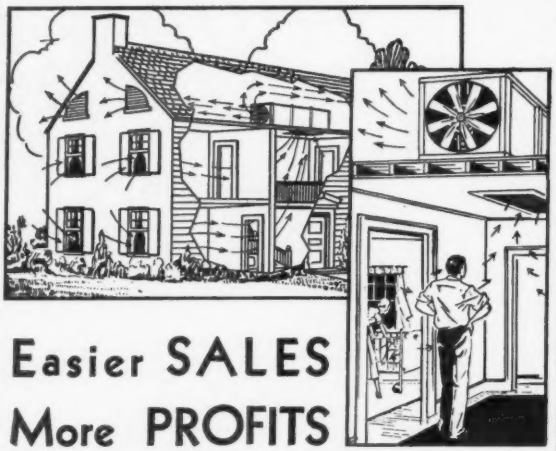


"BUFFALO" Breeze-Air Attic Fan for home comfort cooling. A large capacity fan that is unusually quiet and economical in operation.



COOLVENT System of Cooling and Ventilating. Forces hot, stagnant air from attic space and draws cool, fresh air in. Capacities 3800 to 18,200 CFM with exceptionally quiet operation.

SIGNAL'S new Deluxe 16" Streamliner heads its 1939 line of Desk Type Fans available in a range of sizes from 8" to 16" in both AC Induction and Universal models.



Easier SALES More PROFITS

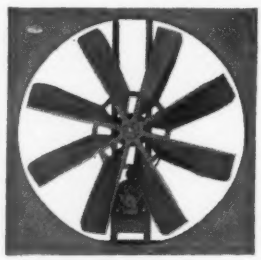
With The New COOLAIR Line

Prices are more attractive! Design is improved! More advertising is scheduled! And new literature, window displays and hard-hitting sales ideas are being prepared to make 1939 the greatest money-making year in history for Coolair dealers.

This new, vastly improved Coolair fan is simpler in design, lighter in weight, easier to install and even more brilliant in performance.

And above all, it's easier to sell, which means more profits for you!

Yet the famous Coolair quality is still supreme. Quality that has made Coolair lead the home cooling field for more than 11 years. Quality that means trouble-free, satisfactory operation and no call-backs for repairs or adjustments.



Jump on the Coolair bandwagon now and go to town in 1939! Get set for the rush of hot weather business. Write today for full details and dealership information.

A Few Choice Territories Still Open

MAIL THIS COUPON TODAY!

Please send me information on the new Coolair fans.

Name _____

Address _____

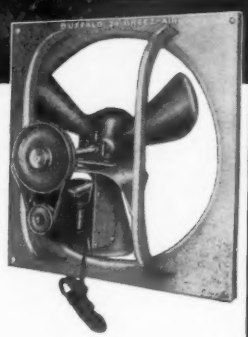
City _____ State _____

Coolair Ventilating and COOLING Systems

AMERICAN COOLAIR CORPORATION

Manufacturers . . . . JACKSONVILLE, FLORIDA

There's PROFIT for YOU in selling COOL BREEZES in HOT, SULTRY WEATHER



In just a few short months, millions of people will again be complaining about the insufferable heat. "Make hay" in this market by selling Breez-Air Fans for home comfort cooling.

Every good home is a prospect. Experience shows that one sale in a neighborhood quickly leads to several more.

And remember, when you sell Buffalo Breez-Air Fans, you sell tops in quality, and quiet, low-cost operation.

Some Valuable Territory Open

We back our dealers and distributors with plenty of good advertising and merchandising cooperation. If you have a sales organization, write us for our attractive proposition.

BUFFALO FORGE COMPANY

210 Mortimer St. Buffalo, N. Y.

Branch Engineering Offices in Principal Cities
In Canada: Canadian Blower & Forge Co., Ltd. Kitchener, Ont.

"Buffalo" BREEZ-AIR ATTIC FANS
FOR HOME COMFORT COOLING

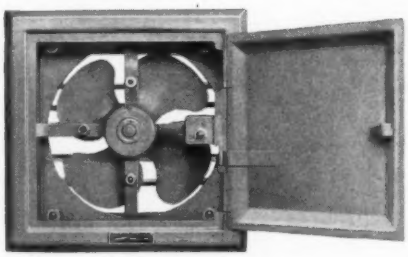
As Modern as TOMORROW

This streamlined beauty is the new Deluxe 16-inch SIGNAL 3-speed Fan. It is modern in styling and engineering. Some of the outstanding features are enclosed oscillating unit with push button control, slow speed motor, greater air delivery, wide sweeping fan blades and unusual quietness.

$29.50 LIST

Finished in rich black baked-on enamel, polished aluminum blades and cadmium plated guard.

HERE'S THE NEW SIGNAL AUTOMATIC WALL BOX KITCHEN VENT FAN ONLY $24.00 LIST



A high quality kitchen vent fan for permanent installation . . . telescopic in design . . . made in sizes to fit walls from 7″ to 24″ thickness . . . easy to install . . . 10″ quiet type fan that moves 500 cubic feet of air per minute . . . outside shutter frame is cast iron with aluminum weather-tight shutters . . . motor is rubber mounted . . . motor operates by opening and closing door.

ADJUSTABLE FLOOR MODEL PEDESTAL FAN

A high quality oscillating fan adustable from 4 ft. 6 in to 7 ft. 6 in. from floor to center of fan . . . 16″ quiet type polished aluminum fan blades . . . rotary type switch, 3 speeds . . . induction motor non-radio interfering.

$35.00 List

The demand for Signal Fans is constantly increasing. Signal offers high quality at moderate prices. And there's a nice margin of profit for you. Write for 1939 fan catalog, merchandising program, and prices.

SIGNAL ELECTRIC MFG. CO.

Menominee, Michigan

SIGNAL MANUFACTURERS OF ELECTRICAL PRODUCTS

Branch Offices: Atlanta, Ga.—W. E. Hopper, 357-59 Marietta St.

Dallas Texas—Geo. E. Anderson, Santa Fe Bldg.

It shines for you!

For 60 years it has been General Electric's policy to manufacture quality products, to price them fairly, and to deal fairly with its customers.

As a result, today, General Electric is one of the best-known names in the electrical industry, and the General Electric monogram is one of the best-known and most-respected trademarks in the entire world.

In a word, General Electric products have acceptance, and certainly this is true of General Electric Fans, the first electrical appliance manufactured by the General Electric Company, and a product whose sales to date, to customers of all types, add up to millions of units!

This background of experience and prestige is a bonus you get when you carry G-E Fans. You pay nothing for it, because General Electric Fans are competitive in price with other high-quality fans. Why not enjoy it?

The salesman of your local G-E Fan Distributor will be around soon to show you his copy of the unique G-E Fan Portfolio, "LET'S GET DOWN TO BRASS TACKS." Watch for him—listen to him—and profit by his sound advice!

APPLIANCE AND MERCHANDISE DEPARTMENT
GENERAL ELECTRIC CO., BRIDGEPORT, CONN.

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ORDER FROM
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Quality - Dependability - Service

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FIRST, because this catalog features top quality lines—SECOND, because it is indexed and the right item is easy to find—THIRD, because it saves time and you're sure of right selection—FOURTH, because you can depend on Insulation Incorporated Service—it's prompt and dependable—FIFTH, because you get cooperation that pays—SIXTH, because you save money by ordering from this one source.
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Standard or Commercial—Automotive — Refrigerator, Century, Delco, Wagner. All products of merit, nationally-known, widely used. When you need Commutators we have the right quality.

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YOUR KEY TO COMFORT

IN *St Louis*
HOTEL
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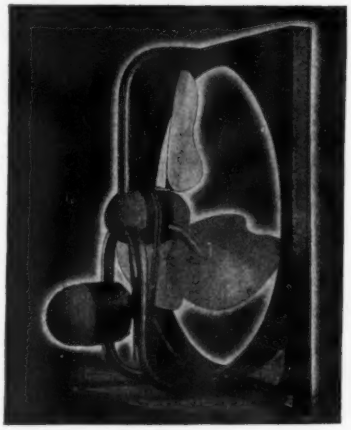
50% OF ALL ROOMS $3.50 OR LESS, SINGLE
$5.00 OR LESS, DOUBLE

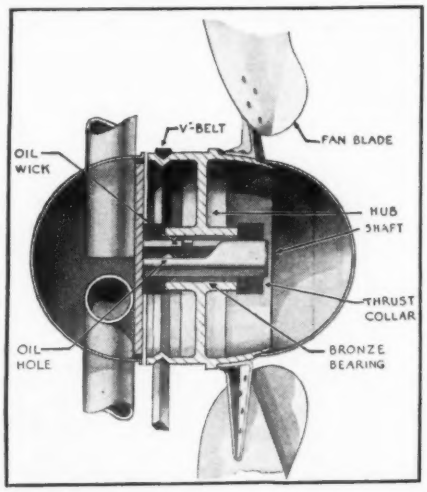
There's MONEY for YOU in EVERY ATTIC



Put these VIKING ATTIC FAN advantages to work for you!

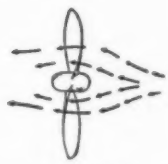
The VIKING Attic Fan, backed by VIKING'S reputation for outstanding engineering skill, sets new standards for performance. Test after test proves its greater economy, quietness and effectiveness. Show YOUR customers how their homes can be effectively cooled WITHOUT a costly air conditioning system. Put Viking to work for YOU!

Like a ship's propeller, the Helixoid Air Impellor fan blades revolve at a comparatively slow speed, moving the air smoothly and efficiently, without turbulence or noise. Pulley, bearing and hub are combined in one self-contained streamlined unit.



Streamlined for Efficiency

Remarkable quietness and efficiency is achieved by consistent streamlining of every part. Sketches show how the Viking hub, which eliminates separarte pulley, allows air to flow smoothly, without backflow or lost efficiency as in ordinary fans.



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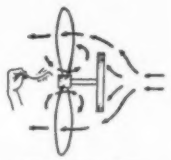

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Accurate A. S. H. & V. E. Ratings insure perfection

Elaborate Viking testing equipment is used to develop the highest efficiency possible. A STROBOSCOPIC ANALYZER assures smooth, steady flow of air through the fan. DECIBEL METERS measure volume of sound, and are used to obtain greatest possible degree of quietness. 40-FOOT WIND TUNNEL built to exacting A.S.H. and V.E. requirements, determines accurate air delivery and performance data.

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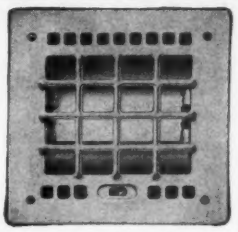

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In Chromium or White porcelain finish.

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MODEL 150-B—$15

* Completely adjustable in steps of one-half hour.
* Provides one, any number, or any combination of half-hour periods as desired.
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THE
"HANDBOOK OF INTERIOR WIRING DESIGN"

THIS valuable new handbook is the first standard of wiring adequacy equally acceptable to all branches of the electrical industry and is sponsored by the eight National Associations. It fills a long-felt need in dealing with the problem of inadequacy in wiring capacity and the handicap it places on electrical progress.

In preparing this Handbook, the authors have endeavored to create a reference book of value to the designer of those installations not normally handled by a consulting electrical engineer or by firms that undertake large special structures and maintain engineering staffs.

In general, the Handbook discusses "why" adequate wiring is needed, "what" must be installed to supply those needs, and "where" it should be placed. It is distinctly not a booklet on "how" to wire in the sense of covering specific wiring materials and their installation. Every effort has been made to include all of the factors that enter into the smaller job while only an outline of procedure has been given for larger installations.

This valuable handbook may be secured with a three year subscription to ELECTRICAL SOUTH for $2.50 or with a five year subscription for $3.50.

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"Miracle Breeze" Fans

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Want to *double* your fan sales in '39? Here's how!

The most powerful fan selling feature ever developed—Victor's patented no-draft, no-blast "Miracle Breeze"—is ready to help you get more fan business than you've ever had before. The famous Victor Ribbon Test gives you more than a talking point . . . it's a sure-fire demonstration your customers can *see* and *feel!*

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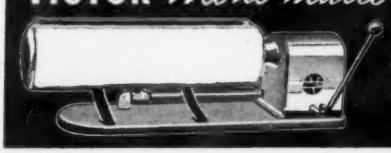

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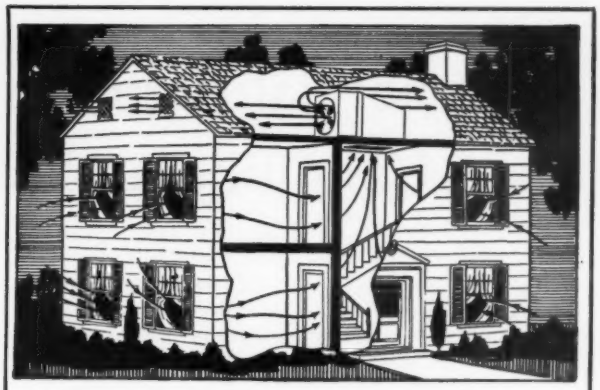

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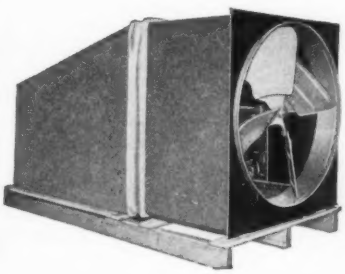

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Here is one of the fastest money-making opportunities in the electrical appliance field. Sales for REX AIRATE home cooling by means of attic ventilation are growing so fast that electrical distributors and dealers are needed for open territories everywhere.

AIR CONTROLS, INC., a leading manufacturer of attic ventilation equipment, supplies its customers with effective direct mail and sales plans that really produce business.

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THE CLEVELAND HEATER COMPANY
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Commercial Refrigeration and Air Conditioning Prove Ideal Combination

By Geo. H. Watson

A DEALER has to be good to do ninety per cent of the air conditioning in his territory, but that is the record claimed by the Helburn Company, refrigeration representatives of Montgomery, Alabama.

This concern specializes in the smaller jobs. It not only makes a specialty of working out jobs which customers can pay for but is able to extend easy terms, so that the purchaser of air conditioning may pay for it monthly out of his business.

Another factor in the success of this 28-year-old concern is that it has been in the institutional supply business for years, outfitting restaurants, grocery stores, soft drink stands, hotels and hospitals. A big part of its business consisted of the sale of refrigeration equipment including display cases for meats, dairy products, sea foods and vegetables. Hence taking on air conditioning merely meant an expansion of the refrigeration department and this was done when restaurants and grocery stores began to show an interest in air conditioning.

Branching out from the food field, the Helburn Company has also air conditioned most of the apparel stores in Montgomery. In the main square of the city the four corner stores were all air conditioned by this company. More than $100,000 worth of air conditioning, mostly in less than 10-ton jobs, have been handled in a six months period.

Fitting the job to the customer is a specialty with the Helburn Company of which Sam Helburn is president and Paul Renaud is air conditioning engineer. For example, a job comes up in a clothing store in which the architect or consulting engineer has specified a certain amount and size of equipment.

Engineer Renaud also makes a survey of the job. He submits a bid just as specified by the architect or consulting engineer, but if in his judgement the store can be adequately served with smaller equipment, by improving the layout, then he asks permission to submit an alternate bid. This has won the concern a number of contracts. As a rule, the air conditioning bids run higher than the owners anticipate, and many jobs have been indefinitely postponed on this account, so that the Helburn Company feels justified in submitting alternate bids on some jobs.

"Most of our air conditioning jobs are in retail places where the customer remains only a few minutes while making a purchase," said Mr. Renaud. "Therefore not as much refrigeration is required as in an office for instance where the comfort only of the employees is considered. So we strive to provide comfort for the customer and that doesn't require as much air conditioning capacity for a satisfactory job. We figure that a 15 degree difference in the temperature inside and outside the air conditioned place is quite enough."

The Helburn Company in Alabama find air conditioning and commercial refrigeration sales and service an ideal set up. At left is a typical installation of both services in a grocery store, while below is the extensive home of this 28-year old firm . . . . .

VARNISHED CAMBRIC • RUBBER COVERED POWER CABLES • BUILDING WIRE

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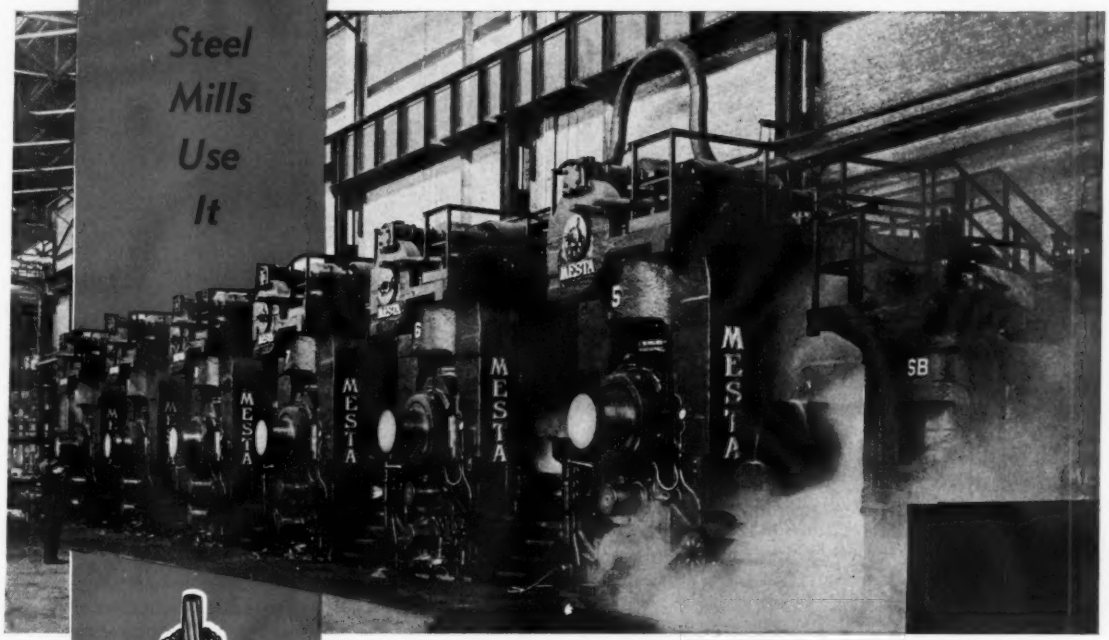

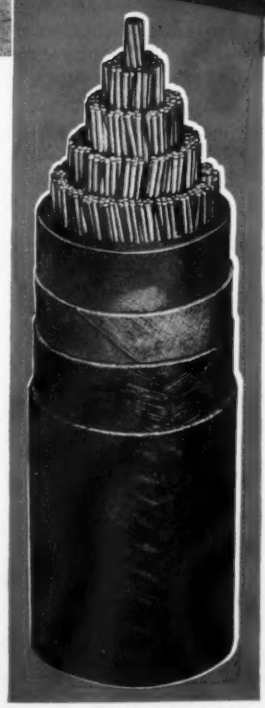

To carry the load imposed by heavy industry, CRESCENT offers a complete line of which a few are Control Cables, Rubber Covered Power Cables, Lead Covered Cables, and Varnished Cambric Cables. Where excessive heat, vibration and hard usage are encountered, specify CRESCENT super-aging and heat-resistant ENDURITE Insulation. Write for complete information or call on your nearest Crescent representative.

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CRESCENT ENDURITE SUPER-AGING INSULATION • WEATHER-PROOF WIRE

The Helburn Company also has an advantage in that it represents a manufacturer which supplies all the equipment for air conditioning, where competitors sometimes have to assemble the component parts. Only the sheet metal work is sublet. The installation is made by the service department which has had long experience with refrigerating equipment. The service men also can handle such work as building a water tower on small jobs.

Typical Installation

An example of the scope of the Helburn Company's business is afforded in the recent modernization of the Kentry Grocery Company in Montgomery. Helburn furnished all fixtures including refrigerated display cases, scales, coffee mill and slicing machines. In addition it installed the air conditioning. The latter consists of a five-ton installation. A 1½ hp motor supplies refrigeration for the meat and vegetable cases. The store walls and ceiling are lined with Celotex. In addition the ceiling was rockwool insulation. The ceiling is only nine feet high which made the air conditioning job easier. The air conditioning unit is attached to the ceiling just back of the partition wall between the display room and the storage room in the rear. A Celotex inclosure is provided for the unit which makes for a neater looking job. Ductwork is placed in the partition wall and air circulated toward the front. Winter heating is provided by a gas heating unit placed in the main duct.

This is one of the first independent grocery stores in the South to be air conditioned. The first such store in Alabama to be air conditioned was the Auburn Cash Grocery of Auburn, Ala., a job also handled by Helburn. This concern has furnished the grocery with display cases, scales, walk-in coolers, exhaust fans and the like for years and the air conditioning came as a welcome addition to this business.

One of the larger jobs completed by this concern was a 27-ton installation in a Selma, Ala., hospital. The operating room, doctors' office, reception room and some of the patients' rooms were cooled. A separate cooling unit serves the operating room in order to make sure that ether fumes are not diffused elsewhere in the building. Patients are charged $2.00 per day extra for air conditioned rooms.

The fact that the company has been in business so long is used of course as a point in the sale of air conditioning where the matter of maintenance arises. A half dozen men are employed in the service department which serves quite an area outside of the city as well.

The Helburn Company owns its own two-story brick home at 412 Montgomery Street, a feature of which is a ramp reaching the second floor where trucks may load and unload. The concern advertises as "The South's largest and most complete refrigeration equipment and supply house."

Experimental Installation For Attic Fan Study . . .

CONTRIBUTING a great deal to the solution of comfort cooling system problems for the Cahn Electric Co., of Shreveport, La., was the experimental fan installed in the shops of this company in its downtown store, Abry S. Cahn, president, reported recently.

A typical fan of the line carried by this company was installed just over a partition dividing the front of the shop area from the rear. A grille was placed beneath the fan at ceiling height. A method of bracing the fan into position for best results was worked out.

Materials to be placed beneath the fan for absorbing vibration and noise were given thorough trials, and one was finally selected. This feature, alone, considerably improved installations made by the company, Mr. Cahn said.

The same experimental work was done to determine the best type of grille to be used. Some firms, Mr. Cahn pointed out, use wood, some metal. The Shreveport company undertook to find out which of these, and in what form, was most suitable to do the work efficiently.

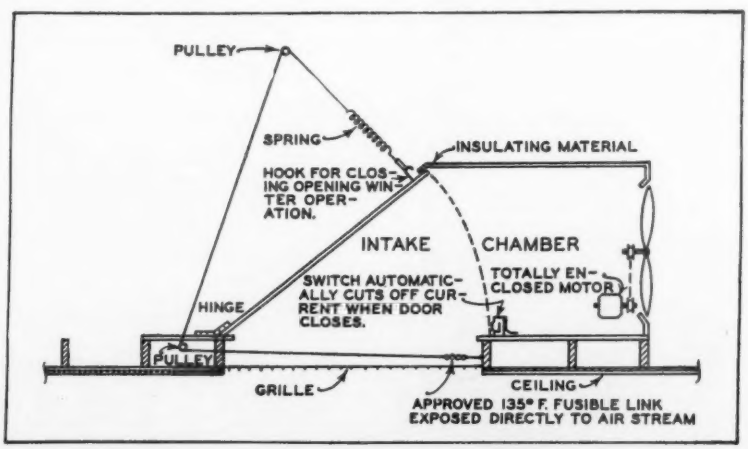
"The more efficient your grille is, the smaller the ceiling opening required," Mr. Cahn pointed out.

Safety Feature Developed

One of the most unusual features of the fan installation worked out in this experiment was the drop door at the back of the fan. It lifts to a slant position above the opening and in back of the fan, where it is held rigidly in place, thus directing the air from the ceiling opening into the fan from the rear.

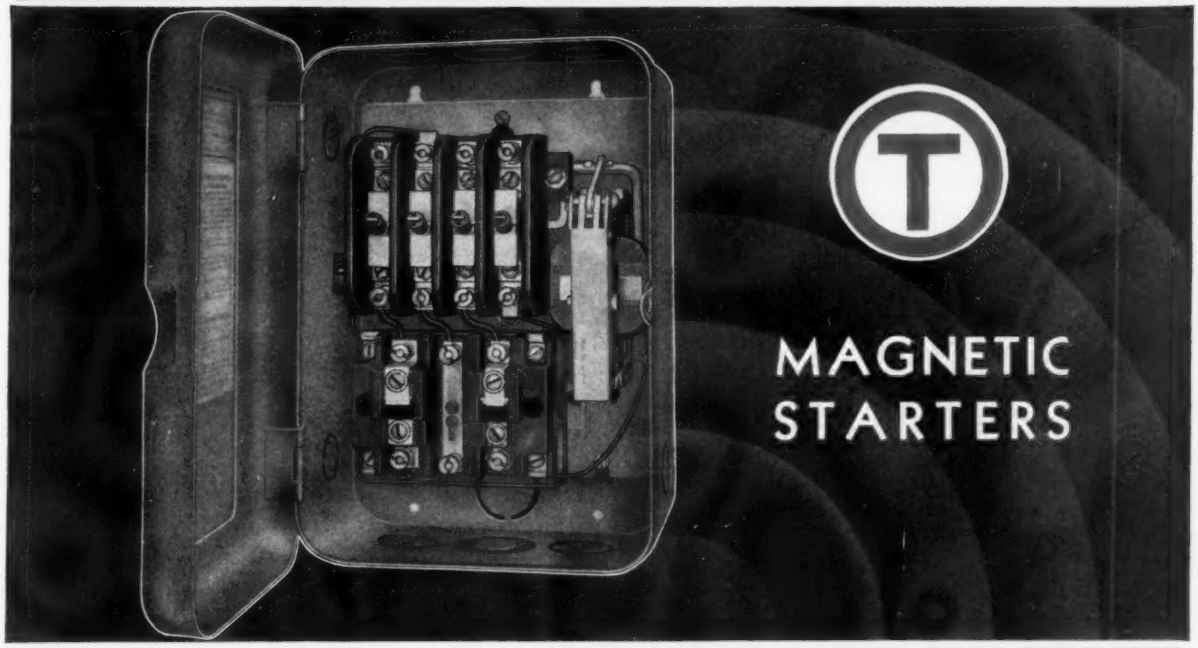
In this position, it forms a door to the fan box, in the attic, and prevents air from the attic going into the fan. But it also serves an excellent secondary purpose in minimizing possible fire hazards. On every fan having this feature installed, a fuse is provided which breaks at approximately 135 degrees Fahrenheit, causing the door to drop back into place over the grill opening.

As the door covers the grill opening, it operates a mechanism which cuts off the fan, thus removing any chance of suction which might lift the door again, or prevent it from staying securely in place and cutting off the draught of air through the house.



The fusible link and drop door incorporated in this attic fan design contributes a great deal to the safe operation of this type unit . . .

Every Trumbull Product is designed with these ideals in mind . . ● faultless electrical and mechanical performance . . ● economical installation and maintenance . . ● utmost safety to man and equipment. That is what we mean when we say that Trumbull Products are RIGHT for the jobs they are designed to do.



Right . . . . for These Reasons

Easier installation and maintenance. ENTIRE STARTER MECHANISM mounted on a single steel back plate, removable AS A UNIT from the FRONT of the box. All important parts, such as magnetic coils, overload relay heaters and contacts, are also inspectable and removable from the front.

Thermostatic overload mechanism, accurately calibrated, has same characteristics as motor . . . resets automatically . . nothing to renew. Interchangeable relay heaters.

NON-CARBONIZING heavy black glazed porcelain BASES prevent absorption of moisture and accumulation of dust or carbon . . . eliminate danger of flashover.

Simplified wiring. Identified control terminals for leads to push button stations.

High interrupting capacity and double break action, Duo-break, wiping pressure, butt-type contacts.

Handsome machine grey enamelled round-cornered boxes match the high standards of finish in modern installations.

Right . . for These Applications

Because of greater safety, convenience and freedom from service interruption made possible by their excellent performance, these starters find almost unlimited application in conjunction with "finger tip" push button control and individual motor drive.

They provide complete motor protection against overload, undervoltage or damage through phase failure under all operating conditions.

Trumbull Engineers, working with leading designers, builders and users of motor driven machinery and process equipment, have developed many special control devices combining Trumbull Magnetic Motor Starters or Magnetic Contactors (controlled through thermostats, time, float, pressure or vacuum switches) with disconnect switches and reversing switches in compact unit mountings.

Let Trumbull Engineers help you find the RIGHT answer to your own motor control problems. And remember that Trumbull Products and Trumbull Service are no further away than the Trumbull Electrical Wholesaler and Contractor in your own territory.

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Right ON THE JOB

PRODUCTS THAT ARE RIGHT FOR THE JOB . . . SERVICE THROUGH WHOLESALERS AND CONTRACTORS WHO ARE RIGHT ON THE JOB

Few local chapters of the National Electrical Contractors Association have been able to maintain the interest in their organization and activity on the scale enjoyed by the Jacksonville Chapter, Florida. Once a month, the Chapter holds a closed meeting for members only but in order to develop industry cooperation and understanding, the association also holds an industry meeting and banquet once each month which is attended by dealers, inspectors, wholesalers, utility employees and manufacturers representatives as well as electrical contractors. The group attending one of the latter meetings is shown above . . . . . .

EHFA Wiring Plan Promoted in Florida

(*Continued from page* 19)

operation for only a short time, its success appears to be assured. One of the principal advantages is that all contractors who belong to the association receive their share of the business on a basis which includes a fair profit. The incentive to substitute competitive materials of lower quality is entirely eliminated, and the home owner is assured of receiving an adequate, safe wiring installation.

State Wage and Hour Bills Discussed . . .

(*Continued from page* 19)

The state bills will specify a maximum eight-hour day, the work week to be reduced over a two-year period, the length of the week to be established by state determination. The committee did not attempt to recommend a basic wage minimum but it did suggest that a minimum amount be fixed and not left for determination by state wage boards which are sometimes slow to act, defeating the main purpose of immediate relief to underpaid workers. The time and a half for overtime clause is recommended.

As in the Federal Act, the penalty for violation provides that employers paying less than the minimum wage or overtime compensation shall be liable to the workers for double the amount unpaid.

The bill follows closely the generally accepted procedure found in existing state minimum wage laws and in the Federal Act for the development and issuance of wage orders, including provision for investigations, careful deliberations, and public hearings. The Federal pattern will also be followed in combining wage and hour provisions in one measure, in setting up wage boards, and in charging the labor commissioner with enforcement.

The determined drive for state wage and hour legislation covering all workers had its inception close upon the passage of the Fair Labor Standards Act when a number of state officials and labor representatives approached the Department of Labor for suggestions as to how the Federal Act could be adapted to state use, bearing out the contention of Washington political observers that the Federal wage and hour law was everybody's baby and not just the problem child of the manufacturer and distributor.

Electrical Installation of The Sam Houston Coliseum

(*Continued from page* 24)

be lowered so that separate performances for the Coliseum and Music Hall can be given at the same time should it ever be desired to do this or the entire stage is available for either auditorium.

On the stage is a pre-select pilot board, employing reactor dimming control contactor panel, with dimmer panel in basement just below. This controls stage and Music Hall lighting, which consists of three colors—pink, blue and red.

Reactor dimming, Mr. Copeland explained, gets away from the heavy resistance plate used in the old form of dimming. The dimming is controlled by the use of direct current passed through a reactor coil, which serves the same purpose as the old style resistor. With the reactors in the basement, the board is more compact and flexible.

Preset Switchboard Installed

By means of the pre-select system, lighting for five different scenes can be selected in advance and timed so that the desired scene will come on when the master switch is tripped.

A public address system was installed in both auditoriums, designed so that microphone outlets can be hooked up in practically any position in the Coliseum. A series of loud speakers was located near the center of the large auditorium, facing all directions; others are in corners of the room.

An interesting installation in the Coliseum recently, handled by the Copeland Company, was the arrangement of an ice rink to accommodate the Sonja Henie troup of performers. The wooden floor in the oval was removed and over the dirt, some 40,000 feet of 1 1/4-inch black pipe coils were laid. Over these coils was placed damp cheese cloth, then a fine spray of water was frozen as it hit the cheese cloth or ice surface. Temporary compressors had been set up in the basement for freezing the coils. This entire lay-out of the ice rink was handled without wetting the soil underneath the temporary wooden floor, Mr. Copeland stated.

Engineering

IN THIS SECTION:
Southeastern Engineers to Meet in Raleigh
Repair of High Voltage Bushings
Low-Pressure Gas-Filled Cable Developed

Southeastern Engineers To Meet in Raleigh . .

NEARLY 100 utility engineers are expected to be in attendance at the quarterly meeting of the Engineering and Operation Section, Southeastern Electric Exchange, to be held in Raleigh, N. C., February 23 and 24. Headquarters for the meeting will be in the Hotel Sir Walter.

Although the greater part of the program for the two-day meeting will be devoted to technical subjects relating to transmission and distribution, two subjects of a more general nature pertaining to personnel management should be found particularly interesting and timely. One of these, "The Wage and Hour Act," will be discussed by C. B. McManus, assistant operating manager, Georgia Power Company. "Increasing the Efficiency of Man Power" will be the subject of an address by W. E. Brown, manager electric department, Virginia Electric & Power Company.

Among others who will address the meeting, on the subjects indicated, are: J. I. Onarheim, sales engineer, Allis Chalmers Manufacturing Company, "Design and Application of High Voltage Step-Type Regulators;" M. C. Miller, electrical engineer, Ebasco Services, Inc., "Distribution Capacitors;" F. H. Meece, engineer, transmission department, Carolina Power & Light Company, "Experience with Expulsion Gaps on Transmission Lines;" and L. M. Shadgett, Georgia Power Company, chairman of the Safety Committee, E.E.I., "Safe Practice in the Maintenance of Distribution Circuits."

Other subjects to be discussed before the meeting include progress in simplified wiring to reduce installation costs and the coordination of fuses.

R. I. Butterworth, East Tennessee Light & Power Company, chairman of the section, will preside over the meeting.

Gas-Filled Cable Described To A. I. E. E. Group . .

LOW-gas-pressure cable, most recent outstanding development in its field, was announced January 26 by G. B. Shanklin, engineer of the cable section of the General Electric Company, at the 1939 A.I.E.E. Winter Convention, held January 23-27 in New York City.

In the new cable less insulation is required, for a given conductor size, than in the solid type of construction. As a result, gas-filled cables of a higher rating can be substituted for the solid types in existing duct systems without enlargement of manholes. At present the cost of the two types is comparable, and particularly in the voltage range from 10 to 35 kv it is believed that the smaller diameter and possible use in smaller ducts of the gas-filled cable will assure its wide application.

Cross section of new gas filled cable described at A. I. E. E. Winter Meeting.

This voltage range was formerly the gap between the optimum ranges of the solid-type and the oil-filled constructions. The new product is almost as easy to handle in the field as is solid-type cable, and splices are simple. The adjustment of gas pressure can be handled economically by gas reservoirs when conditions require them. An alarm system can be installed to detect gas leakage.

Similar to Oil-Filled Cable

The general construction of the new cable is quite similar to that of the oil-filled cables which are now widely used. The principal difference is that instead of being filled with oil the channel spaces are drained before the cable leaves the factory and the cable system is filled with neutral gas, nitrogen, under a moderate pressure (10-15 lb. per square inch.)

In line with its function of filling the gap between two earlier types of cable construction, its operating voltage stress, in volts per mill, is not as high as that of the oil-filled type but is considerably higher than that of the conventional solid-type impregnated paper-insulated cable.

"Since the need for high-voltage underground transmission arose some forty years ago," stated Mr. Shanklin, "there has been and always will be a continual effort to obtain better and more economical designs of cable systems. Solid-type and oil-filled cables have become standard; in attempting to develop newer and better systems, basic principles are taken from experience gained with these standard types.

"For example," he continued, "the benefits of maintaining positive pressure during service are fully demonstrated. There are

only two well-recognized pressure media: liquid (oil) and gas. The development field utilizing oil as a pressure medium is now covered and is best exemplified by the standard low-pressure oil-filled cable system.

"The use of gas as a pressure medium leaves a more versatile field of exploration. In the way of simplicity it is attractive. There are no hydrostatic head pressures to deal with and the accessory designs are simple, at least for low-pressure systems. Installation and maintenance are also simplified.

"Soon after entering this field of development we concluded that a dry, inert gas in direct contact with and saturating the impregnated paper insulation, gave the best assurance of maintaining pressure through the whole cable cross section with minimum time lag during the temperature and pressure variations," Mr. Shanklin explained.

"It was further concluded that longitudinal gas-feed channels in the cable would facilitate control of uniform gas pressure along the cable length in service. In fact, such channels were necessary to fully accomplish this purpose. They fulfill another important function in providing surplus gas at any point of accidental leakage.

"Without longitudinal fed channels that will readily convey surplus gas, pressure would be rapidly lost at such leakage points and cause failure. On the basis of further observations, we are concentrating on low-gas-pressure systems of moderate voltage rating, and at least for the time being consider this the most promising field of development."

World's Largest 15-kv Air Circuit Breaker Described

THE largest 15-kv multiphase air circuit breaker in the world recently was described by R. C. Dickinson, Westinghouse engineer at the winter convention of the American Institute of Electrical Engineers in New York. The breaker has a continuous current rating of as much as 3,000 amperes and, during routine tests, has interrupted 37,000 amperes (half a million kva) on a single pole and has closed against peak currents of more than 100,000 amperes.

Although nominally designed for 15-kv service, the new breaker has 23-kv insulation. Physically it resembles other three-pole breakers made up of single-pole units mounted on a common frame, actuation being provided by a conventional solenoid mechanism mounted at one side of or underneath the breaker.

Mr. Dickinson stated that after a series of 21 tests in rapid sequence at high currents, which is equivalent to many years of central-station service, the circuit breaker was dismantled for inspection, was found to require no repairs or replacement of parts, and was reassembled to be put through another series of gruelling tests.

Rural Electrification In North Carolina . .

STATISTICS show North Carolina added more rural power customers last year than any other state in the South and was exceeded by only five other states in the union, Chairman Dudley Bagley of the North Carolina Electrification Authority, reported recently.

In 1923, Mr. Bagley said, 2,100 farms were receiving electric power and during the following 12 years the number was increased to 11,448. Progress has been more rapid since then, the 1936 total being 14,319; the 1937 total, 23,866; the January 1, 1938 total, 41,675; and the total now 53,706.

Rural power lines to date have cost $8,437,688. Power companies have spent $6,158,441 to build 6,504 miles; the Federal Rural Electrification Administration has loaned cooperatives $1,520,210 to build 1,417 miles; and various towns have spent $579,037 for 1,056 miles. The average per customer of the power company outlay was $170; of the Federal agency, $245; and of the towns, $135.

Mr. Bagley said a survey in typical counties showed that one year after completion of a rural power line, the average farm customer had invested $180 in wiring and electrical appliances. This indicates, that while the various agencies were spending $10,378,108 building the lines, the farmers were spending $10,675,120 for wiring and appliances.

Filling of Guntersville Reservoir Begun . .

FILLING of Guntersville reservoir, Alabama, fourth TVA water control project to be completed, began January 16 when the 18 gates were closed, John B. Blandford, Jr., general manager of the Authority, announced recently.

In two weeks or less, depending on rains, the reservoir level will be high enough for resumption of navigation through the lock, which has been closed for the last month. In another month at the most, the lake will be at the normal low level to be maintained during winter seasons.

Designed to meet particular spacing requirements, this unit illustrates the adaptability of this new high-power air breaker for special conditions. This is a shaft-operated three-pole breaker with the closing solenoid at one end of a common frame. The pole spacing is 52 1/2 inches, and the unit was completely assembled in the factory.

Shop Practice in the Repair of High Voltage Bushings

By W. L. Stratton and Geo. F. Stratton*

Armature Winding Company
Charlotte, N. C.

MAJOR repairs to high voltage bushings were not considered in this locality prior to 1931. Since then, however, over 1200 bushings have been repaired and of that number only ten failed during tests before leaving the shop. Only 12 have been reported to have failed in service.

The methods described in this paper are the successful results obtained after considerable experimentation. The first repairs tried were to replace damaged banding wire and turn out carbonized spots on the lower ends of condenser bushings with the entire bushings chucked in a lathe. However, it was found necessary to dismantle the bushings before a satisfactory baking-varnish finish could be obtained.

The first bushing was dismantled on a very warm day and the insulating compound, which was ordinarily hard, was comparatively fluid, allowing the stem to be removed from the porcelain stack, leaving the cap intact. The stack was then suspended in an oven by the cap contact to permit the remaining compound to melt, but before the compound was out, the cap expanded at the top rain-shed joint and released its hold on the stack, which fell to the floor of the oven.

The stem in turn was cleaned and placed in the oven to bake out the moisture. The temperature of the oven was raised too fast, and the internal pressure, due to moisture in the stem, caused it to burst.

Experiences such as these were met time and again during the early days of bushing repair before a practical solution to these difficulties was found.

Defects Found in Bushings

The most common defects found in bushings are:

(1) Broken porcelain, both mechanical and flashover.

(2) Leaking gaskets, caused by deterioration of gasket material and loosening of bolted joints.

(3) Creepage on lower end of condenser bushings, caused by bad oil or carbon.

(4) Internal electrical breakdowns.

(5) Porcelain shells blown off of solid-type bushings, apparently due to voids in hard insulating compound in the top ends of the bushings.

(6) Blow holes and cracks in cast caps, permitting water to seep in.

(7) Bad contact between current-carrying stems and top terminals.

(8) Deterioration of ground shield insulation on solid-type bushings.

(9) Migration of oil into the compound-filled top end of solid-type bushings when used with conservator tank apparatus.

(10) Loose cement and litharge joints in bulk-type porcelain bushings.

(11) High comparative test readings.

When a bushing is received at the shop for repairs it is thoroughly examined to determine the extent of its external damage. It is electrically tested for internal faults by applying 33 kv between the top contact and the flange and reading the current in the circuit. The temperature of the bushing is noted at the time, as it will affect the magnitude of the reading. This reading is then compared to like readings of good bushings of the same type. High comparative readings indicate trouble.

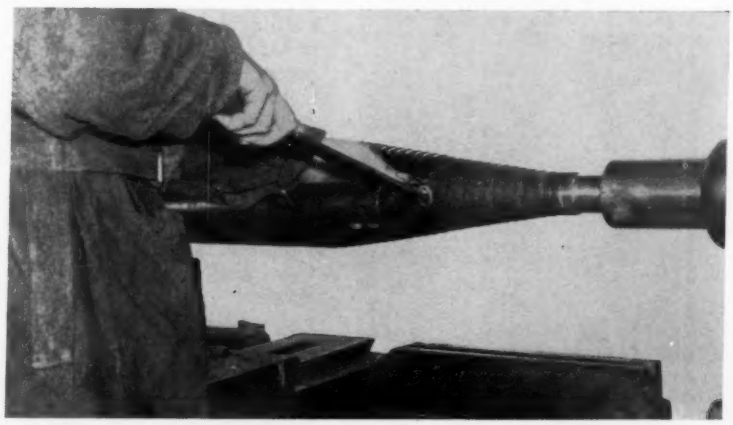
If the bushing appears to be repairable, it is marked with an identifying number from which the history of its repairs may be traced. This facilitates future work.

Repairing Condenser Bushing

The cap is removed from the porcelain stack. This is accomplished on new type bushings by unbolting and on older bushings by chipping the litharge or cement between cap and porcelain. The bushing is then suspended at an angle in the oven and the compound melted out.

While still hot, the porcelain stack is slipped off the stem, and

*Adapted from a paper presented before a meeting of the Southern Section, American Institute of Electrical Engineers held in Miami, Fla., November 28-30, 1938.



Condenser type bushings are cleaned by turning down in a lathe

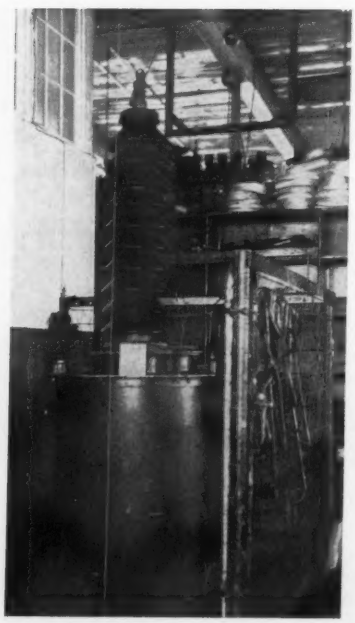
if the stack is composed of multi-piece porcelain sheds cemented together with hard compound, these are separated at this time. In the case of cement or litharge joints, specially shaped chisels are used in an air hammer. After separation, the rainsheds are washed with gasoline and examined carefully for defects before they are re-assembled.

The stem is centered in a lathe and cleaned down to the original surface.

Burns, creepage, or mechanical damage to the steps are repaired carefully by turning out the bad spots. This is accomplished on the bottom end by removing enough banding wire to permit the top layer of foil and insulation to be turned back likewise. On the top end, the turned-out spots are distributed over three or four steps.

The steps are then tested by applying 33 kv across all of them and short-circuiting adjacent ones with two joined pointed contacts mounted on the ends of 18" insulating sticks. The condition of the step is judged by the strength of its arc.

After weighing, the stem is baked in the oven at from 200 to 220 degrees F. for 21 days. Then it is weighed again and the weight lost noted. Some stems lose as much as a pound and a half of moisture and oil. The average for 88 kv and 100 kv stems is 8 oz.



All repaired bushings are subjected to a high voltage test with this equipment . .

Steps found to be bad frequently bake clear in the oven, but if they do not, they are short-circuited on the top end of the stem by connecting their layers of foil with a small strip of sheet copper to prevent further burning. This reduces the number of steps on the bushing.

The surface of the stem is cleaned with gasoline and allowed to dry before the clear baking varnish is applied. The first coat is applied very thin and allowed to bake 24 hours, then 12 additional thicker coats are added at 12-hour intervals.

After each baking, the finish is carefully examined for blisters or oil. If either appears, the spot is scraped clean and washed with gasoline before the next coat of varnish is applied. It is necessary to maintain constant oven temperature throughout the varnishing period to obtain best results.

No repairs are required on caps that are bolted to flanges cemented to the tops of porcelain shells, but radical changes must be made on the cast caps of earlier manufactured bushings.

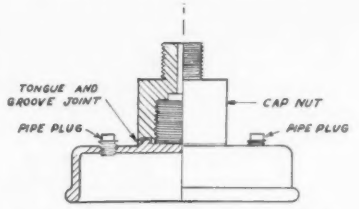
Machine Work on Caps

The threaded portion is cut off and machined, as shown in the diagram. A groove is cut in the cap nut and a tongue machined in the cap to match it. When the bushing is reassembled, this joint is soldered to provide a perfect seal against moisture. Two holes for admitting the compound are also drilled in the cap and tapped for one-half inch pipe threads. One of them is used for a breather pipe when the bushing is put in service.

On some circuit breaker bushings, when high-current carrying capacity is required and the cap nut is also the contact, an additional lead is soldered inside of the cap nut and run down through the hollow conductor to the lower end of the stem where it is soldered to a brass plug tightly fitted into the conductor.

The finished stem is removed from the oven and placed in the assembling rack. The rainsheds are then stacked on, all joints are brushed, and all gaskets are completely covered with red lacquer.

When litharge is used in cementing multi-piece rainsheds, strips of one-eighth inch thick cork are placed around the walls of rainshed joints when the litharge space



Cast caps of earlier manufactured bushings must be machined as shown here . .

is excessive, in order to prevent porcelain breakage from expansion of the litharge.

Often gaskets of different thicknesses have to be used to maintain good gasket pressure and at the same time allow the cap nut to be screwed down tight.

The tongue and groove joint between the cap and nut is then soldered, and the bushing filled with semi-fluid compound that has been heated to accelerate its flow. After cooling for one hour, the lower end of the bushing is submerged in oil and a high voltage test applied. A test of 88 kv for one minute and 50 kv for 30 minutes is applied to all 44 kv bushings; and 150 kv for one minute and 100 kv for 30 minutes is applied to all 88 kv bushings and above.

The exposed steps on the lower end of the bushing are taped with varnished cambric tape and covered with moisture-proof compound, after which the bushing is swung vertically up-side-down and litharge, or other sealing compound, poured into the porcelain joints and allowed to harden.

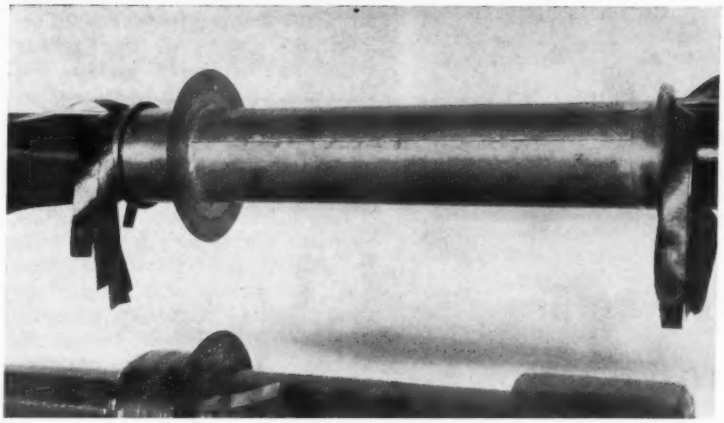
The litharge joints are given three coats of red lacquer, each being allowed to dry before the next is applied. Experiments are being tried with a final coat of weather-resisting paint. The flange is then painted and a nameplate put on giving the identifying number, the job number and the date repaired.

The repaired bushing is then given the same 33 kv test it received before it was dismantled.

Paper Insulated Stems

The majority of the bushings of this type received have broken porcelain shells. In any case, all bolts are removed from bolted joints and the bushing is heated in the oven to soften the compound, so that the flanges and porcelain may be removed without injury to the ground shield.

An undamaged stem is placed in a lathe and cleaned down to the



A copper ground shield with all joints sealed with solder

original paper insulation on both ends, and all cotton tape removed from the ground shield. The seam in the ground shield and the joint at the copper sealing-gasket on the upper end of the ground shield are sealed with solder. It is then retaped with new cotton tape and placed in the oven for baking.

If the ground shield, or varnished cambric beneath it, is damaged, it is removed and the stem cleaned and baked; then the portion of the paper insulation beneath the ground shield is covered with bakelite cementing varnish, and new varnished cambric is wrapped on and a new ground shield installed.

If the insulation is damaged, the damaged portion is turned out and patched with fish paper and bakelite cementing varnish. The patch is put on in steps. Each step is baked and turned smooth before next is added. After baking and varnishing, the corona and ground shields are put on.

In all of the preceding cases the repaired stem is baked and varnished in the same manner as are the condenser bushing stems.

A new porcelain shell, if needed, is ordered from the manufacturer and the flange of the old shell is cemented onto it. The stem is taken from the oven and a pigtail soldered to the copper gasket on the upper end of the ground shield. The gaskets and all gasket surfaces are covered with red gasket lacquer. The bushing is then assembled, compressing all gaskets in the bolted joints to 1/2 their original thickness. The pigtail is secured to the flange, and the upper end of the bushing is filled with semi-fluid compound. A high voltage test is then applied, followed by the same 33 kv test it received before being repaired.

Oil-Filled Bushings

After the oil is drained out, the bushing is dismantled carefully and all parts cleaned with gasoline. Sketches showing dimensions are usually drawn to facilitate reassembly. Porcelain oil separators are carefully chiseled apart. Any clamping ring or contact holder screwed or soldered to the bottom end of the stem is removed, and the joint between it and the stem resealed.

Paper and bakelite oil separators are replaced by new ones. Damaged paper and bakelite separators are repaired or rebuilt with fish paper and bakelite cementing varnish.

New parts and gaskets are ordered from the manufacturer. In assembling the bushing, the cork gaskets are covered with red gasket lacquer and compressed to one-half their original thickness.

Wooden spacers are used to hold paper and bakelite separators in position. Porcelain separators are assembled with litharge spacers.

After assembling and allowing one hour for the gasket compound to set, the bushing is filled with oil. If the gauge glass is the clear type, it is painted, leaving a vertical space for visual inspection of the oil.

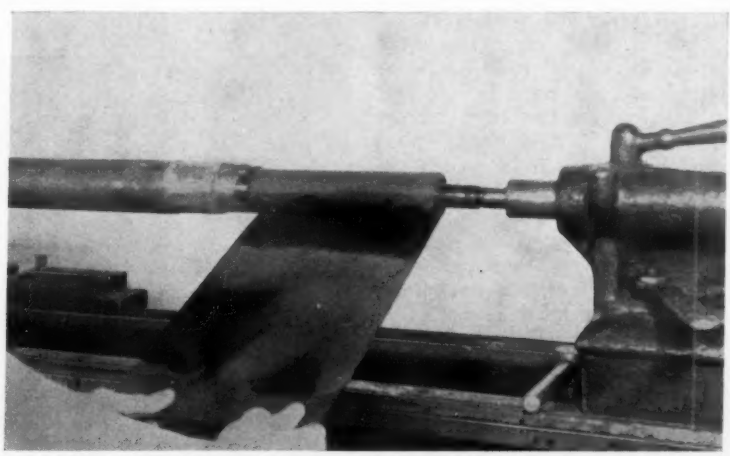
The completed bushing is given a high voltage test.

Bulk Type Porcelain Bushing

This type of bushing is rarely completely dismantled. Loose joints are carefully chiseled apart and recemented, or litharged. Damaged porcelain parts are replaced by new ones. If the conductor is damaged, it is repaired or replaced. Old compound is melted out and new put in after the bushing is cleaned with gasoline.

After repairs are completed, the bushing is tested at twice its rated line voltage.

Over 95 percent of the defective bushings received at the shop are repairable. Not many years ago such bushings would have been discarded and replaced by new ones. However, in view of the excellent record made by repaired bushings, and of the reasonably low cost of making repairs, which averages approximatey 30 per cent of the first cost of the bushing, the practice of repairing nearly every type of bushing is not only possible, but profitable.



Fish paper covered with Bakelite varnish is wrapped on stem

APPLIANCE Service

Sweat-Solder Fittings Require Careful Installation

By Allen Parker

THE use of sweat solder fittings, or the so-called streamline fittings, is increasing rapidly in the refrigeration industry. Possibly the main reason for its present wide acceptance is the almost absolute necessity of its use in air conditioning.

But the advantages offered by the use of solder fittings in air conditioning can also be obtained in other refrigeration applications. Although there is a hesitancy on the part of most service men in adopting solder fittings, I believe the reason is fear in not having the skill to apply them properly; to install them without the danger of having gas leaks.

Naturally Freon or methyl chloride gas is hard to hold and does require a perfect joint but the thought I would like to emphasize is that anyone learning the fundamental principles of making a good joint can very easily acquire the skill necessary for good work.

Some service men recommend forged fittings; others, wrought or die pressed; and some believe that a fitting with a hole in it for applying solder is best while others absolutely refuse to use such fittings. However, either will give good results when properly worked.

Soft solder has caused a lot of trouble and even the manufacturers, at their best, did not supply an ideal solder up to a short time ago. The solder now recommended, which consists of 95% tin and 5% lead, is very hard, has a high melting point, and easily tins the fitting. It will make the task easier in the future if used correctly.

Corrosive soldering paste also contributed to the trouble experienced in the past. By promoting rapid oxidation, it caused leaks as well as some trouble in refrigeration systems. A good grade of non-corrosive flux such as recommended and distributed by the manufacturer of the fitting will eliminate this difficulty.

As a suggestion, do you ever stir your flux before using it? All flux has a chemical ingredient that promotes the bonding of solder and copper, and is in itself the secret of the flux (paste). This chemical after a few hours in suspense settles to the bottom of the can and the use of the paste from the top surface then will give results that might be obtained by the use of so much grease.

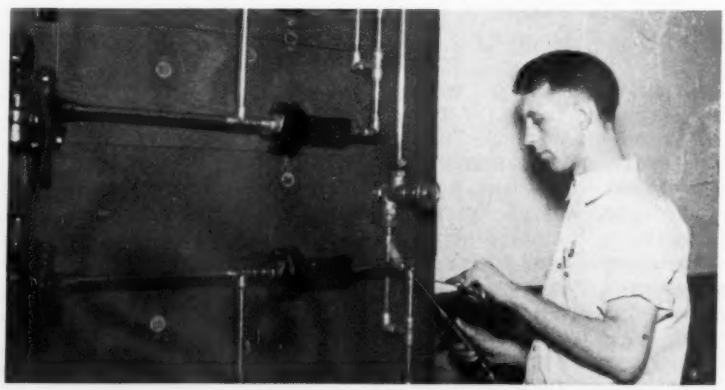
Perhaps you will remember instances where you have cut and placed copper tubing ready for soldering, using the paste as you make the assembly and doing the soldering a few hours afterwards. This inevitable produces poor results which can be traced back to the soldering paste being inactive in its chemical reaction. The best method is to stir the paste occasionally while using it and always apply it as the soldering is being completed.

It is interesting also to note that as paste begins to get old it loses the good qualities mentioned above. Here is a method of distinguishing this: When a can of paste is opened after not having been stirred for awhile, it usually has a glazy appearance on the surface and is rich in color. When the paste is stirred, it should become more and more pale as the chemicals are mixed and if you are unable to get this reaction then it is best to discard it as worthless even though the can may be almost new.

Good economical practice and better workmanship dictate the purchase of paste in small cans for immediate use. An old toothbrush will prove very useful in stirring and applying paste.

Do you use a hack saw for cutting large tubing? Most service men do, although it is very hard to get a square cut with one. Even if you use a jig to hold the saw and obtain an absolutely square cut, you still have a jagged edge that must be removed with a file, and when the job is finished, you probably won't have a square edge after all.

You may ask, why the square edge? Because the fittings have shoulders either machined or pressed into them against which the tubing should fit snugly. Also a proper fit prevents a quantity of unnecessary free solder from getting into the system.



Sweat-solder fittings make neat, efficient installations such as the panel board assembly of an air conditioning job shown above . . . .

Tubing cutters are now on the market that will take care of almost any size copper tubing. They will give excellent results and the time saved alone will soon more than pay for the cutters.

A good soldering job can be made only on clean metal surfaces. Joints thoroughly cleaned with a very fine grain of sanding ribbon just before soldering is excellent insurance of a good joint. And don't get worried if you find some of the new fittings to be too close fitting to make assembly before the soldering is done. This is not a slip on the manufacturers' part, but a new practice. It insures a good cleaning or a little sanding of the surfaces before the joint can possibly be made up.

However, let's hope that you don't do any unnecessary sanding and make a loose fit, as a tight fit will give better results and the soldering will be accomplished through the principle of capillary attraction, that is, the instantaneous spreading of a liquid between two perfectly smooth surfaces placed close together. It is not necessary to ever tin a fitting before making an assembly.

Proper Heat Important

Heat plays an important part in soldering, both in application and intensity. An acetylene torch is the most practical flame to use. The torch itself should be large enough to heat the fitting evenly and not in spots. Heat applied from the back of the fitting until the fitting will automatically take the solder from the front usually will give good results.

A good soldering job must be done between the temperatures of 400 to 500 degrees, F. Practice alone will give you the knack of getting just the right temperature. Insufficient heat will prevent the solder from flowing evenly; too much will cause the unnecessary waste of solder and will also set up carbonization in the fitting, which can only be remedied by disassembling the joint and giving it a thorough re-cleaning. Incidentally, this is probably the best method, anyway, of resoldering a joint that leaks as it is very seldom that a leak can be corrected by reheating and applying solder.

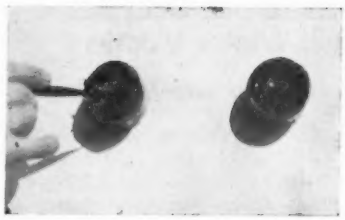
Do you like to use a fitting with a hole in it for applying the solder? I expect the answers are about 50% in favor and 50% against using them. I personally know of some men who do not believe they can use them successfully, while others think it is a very worthwhile improvement in the fitting.

A short time ago I had the opportunity of discussing this subject with a factory engineer of one of the leading manufacturers and when the discussion led to the point to where we agreed that the only real principle involved in soldering fittings was capillary attraction, then I sprang the question as to why a hole in any fitting was ever necessary. The answer he gave me was both feasible and reasonable, so I am passing it on to you for what ever you may think it is worth.

During the process of soldering, there is some gas generated because of the change in form of solder, paste, or other minute particles of foreign matter that may be in the fitting. It is natural to believe that if gas is formed between the two surfaces of the metal, it would force the solder back and leave an air space which, if large enough, might result in a leak. If the bubble had reached a vent, then the gas would have escaped.

Now, if the fitting has a hole in the middle of the surface to be soldered would it not be practical to feed the solder in at this point and let it flow to the outer edges, thus removing the gas as it is formed. Or if it is not desirable to feed the solder in through the hole, wouldn't it serve as a vent in the middle of the surface that is being soldered? At any rate, this is the theory upon which its use is based and I leave it to you to form your opinion of its value.

One of the secrets of making good sweat-solder fitting installations is to have tubing and fitting at proper temperature and evenly heated. Note the large flame applied at back of fitting. . . .



Soldering paste must be kept mixed properly to get best results. Small cans such as these provide fresh paste for every job and assure good work . . .

To perform a good soldering job, it is not necessary to use a large amount of solder, especially in view of the fact that the hard solder used in refrigeration work at its higher cost can run into an appreciable amount of money. As a matter of fact, it is easy to distinguish one who is skilled in the art by the amount of solder he uses. He knows that if the proper amount of solder does not stop the leak, then it is usually worthless to continue building it up. It is just as necessary to disassemble a joint to remedy a small leak as for resoldering a large one.

How do you find the leaks after the joints have been soldered? It's very simple, as most men will testify to release the gas pressure of the system on the lines. But you are almost sure to find a few leaks, whether large or small, with the result that some gas is lost. At present prices, lost Freon or methyl gas can amount to a considerable item in itself.

Here is a better method of testing. A small portable air and vacuum compressor can easily be assembled from an old discarded domestic refrigerator compressor. Connect a dehydrating filter on the suction side of the portable compressor and connect the discharge to the large compressor. Operate the hand valves on the large compressor so as to isolate the newly installed lines from the system and pump air into them until pressure has been built up above normal operating pressure.

Then use a good grade of soap that will lather freely with a little water. A paint brush to apply it on the joints will serve nicely. Leaks

(*Continued on page* 46)

Fan Service Occupies Dull Winter Months .

By Jack Beater

MANY service shops find the winter and early spring months an especially advantageous time to solicit fan maintenance and repair. A profitable volume of this work can be obtained by aggressive solicitation. One service shop utilized available space in a basement for winter storage of fans, offering their customers a combination price for storage and general overhauling just before summer.

One of the difficulties of handling fan repairs on a profitable basis is that of supplying accurate estimates of repair costs to those customers who require them in advance. Perhaps the best policy is to make no estimates until after you have had an opportunity to open up the fan and determine just what it needs. Unless the customer is extremely unreasonable, he'll understand the necessity of such a policy.

You'll have to decide next if the value of the fan will justify the cost of the repairs. Some customers have the nerve to bring in dollar fans bought at a dime or drug store.

Whenever the cost of repairs on a fan will exceed one half the price of a new fan of the same size and type, the best thing to do is to suggest a new fan. Don't make an allowance on the old fan unless you have to in order to clinch a good sale. If the fan isn't worth fixing for the customer it isn't worth fixing for anybody.

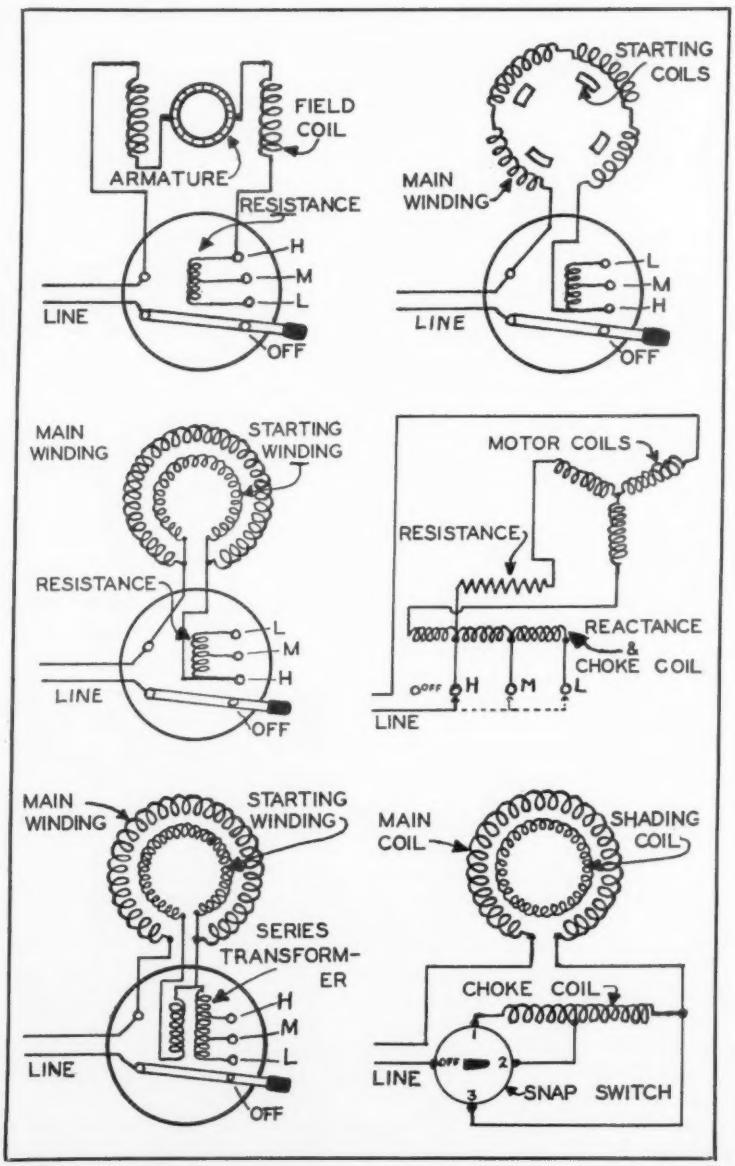
Fans usually come to the repair shop for one of two reasons: will not operate or operates too noisily. Noise in the operation of a fan is generally due to worn bearings, too much end play in the shaft, bent blades, blades out of balance, or excessive wear in the oscillating linkage. These are all mechanical troubles that can be repaired, in most cases, without great expense.

Electrical troubles in the ordinary desk or wall fan are liable to amount to anything from a broken wire to a complete burnout of the windings. There are so many different types of small fans that few repairmen know all the circuits in use. A few of the series or universal type are still in use, but the majority of fans used with alternating current are of the induction type. Even here, we have many different circuits, such as the shaded coil, split-phase, reactance and choke coil paths, transformer controlled, and others. To aid repairmen in following circuits and to designate the different types of windings, some of the typical fan windings are shown here.

The flexible lead from the fan base to the fan motor is the source of much trouble, especially on oscillating units. Two, three and four wire cables are used on different fans, and the repair shop should have a small roll of each on hand. New cables can usually be soldered to the motor leads without disturbing the winding. There is seldom much space available inside the motor housing and the joints must be made small and neat and must be well insulated.

The individual wires in multiple

(*Continued on page* 46)



There are hundreds of fan circuits which the service shop may encounter. Here are a few of the most common circuits: (left to right and top to bottom) series motor; induction motor with shading coils for starting; split-phase motor with high resistance starting winding; split-phase with auxiliary resistance and reactance coils for starting; split-phase with series transformer to shift phase for speed control; and ceiling fan using shading coil for starting . . . . . .

MOTOR Service

Small Points of Importance In Armature Winding

8—"Scotch" Windings

By A. C. Roe

Railway Motor Engineer
Westinghouse Electric & Mfg. Co.

NO, this is not a new type of winding, but a new name for a winding that has all the characteristics for which the Scotch, as a race, are noted. A good many maintenance men shy away from these windings, not realizing what long-wearing friends they can be, if one will only be patient with them at first acquaintance.

Design engineers have another name for these Scotch windings, based on the types of materials used in their construction. They call them class B windings, as the materials used fall into the A. I. E. E. ratings for class B insulation. These windings are being used to a considerable extent today; and as their use by maintenance men can be extended to reduce burn-outs, etc., a discussion of some of the basic features will be in order.

A trait the Scotch are supposed to have, one that is a subject for many jokes, is that of being "tight." After all, this is only the result of a natural instinct to obtain the maximum advantage from any purchase they make. Likewise, a Scotch winding must be tight in the physical sense, if one is to derive the maximum benefits from the time and money involved.

A basic characteristic of the Scotch is thrift, their tendency to drive a hard bargain in order to secure the most for their money; yet there is no doubt that they will spend, and spend plenty, if sure that the returns will justify the expenditure. Scotch windings are like that; they are thrifty. They cost more, but the returns in long life and freedom from trouble more than justify the higher cost of the material and labor used in them.

It must have been a Scotch engineer who first calculated the extra output that he could squeeze out of the same space by using Scotch windings. Likewise, there are a number of Scotch plant engineers who take delight in loading up motors beyond their rated capacity, and for these, the Scotch windings make the motors give and continue to give.

In the construction of the armature coils, the conductors are covered with asbestos, mica, or other inorganic material. Mica is used for ground insulation, then asbestos tape, or Glasweve tape is used for the outside binder; and for the leads or wire coils, either asbestos or Glasweve sleeving is used. From this description it is obvious that the material used in Scotch windings costs more than that used in ordinary windings, but these materials permit us to secure benefits not obtainable with any other type of insulation.

Tightness is absolutely necessary in all sections of Scotch or class B windings, and to this end, the armature coils are generally made to fit the slots without winding cells. If any additional filling pieces are required, they are made from class B insulation, preferably treated asbestos.

The coils should be a tight, driving fit in the slots; and a fiber drift, cut to the full length of the slot section of the coil, should be used in driving the coils down. The mallet is used in the center of the drift, so that the coil is driven straight down. A short drift when used with tight coils only drives down a part of the coil, and this practice often results in cracked mica insulation, which in turn invites grounded windings. This one item of procedure is important when installing coils in class B windings.

Another important *Don't* in insuring a tight winding when using class B armature coils is *"Don't use parafin"* on the slot portion of the coils to make them slide into the slot. Paraffin, it is true, will make the coils slide, but it will also prevent the coils from sticking to the core iron. Furthermore, it will also prevent varnish from penetrating around the coils and sticking the coils to the core iron when the armature is dipped and baked.

To lubricate the slot portion of the coils when driving them into

The two motors in this exhibit of fiber glass insulation are of the same type and hp but the size of the motor wound with glass fiber insulation is considerably less than that wound with conventional insulation.

the slot, and to improve the adherence of the coil to the core iron, the slot sections of the coils should be painted with a baking varnish of the same type and grade used for dipping the armature. The varnish should be applied generously to the coil sides, a mussy job, to be sure, but it makes the coils slide easily and helps cement the coils in the slots, and thus contributes to a tight winding.

It is also a good policy to paint the wedge grooves, tops of coils, or slider, with baking varnish when driving wedges into armatures or stators using class B windings that use wedges. This practice makes driving easier and contributes to a tighter winding.

Dipping and baking the armature core in a high-grade baking varnish, before winding in the coils, is also a good way to aid in securing a tight winding. Even with dipped cores, the coil sides should be painted with baking varnish instead of smeared paraffin.

When class B insulated armature coils are handled, it is always wise to bear in mind that such coils are delicate, and the ends should be shaped with a minimum of pounding. In fact, such coils should be handled and shaped as little as possible. If there is any space between adjacent coil ends, it is necessary to fill it with a hard class B material instead of shaping the coil end over.

In the armature winding and banding processes class B winding material should be used exclusively. Between layers of coil ends pads must be made to fill the space so that the upper layers of coil ends exert pressure through the pads to the layer of coil ends and coil support. Any space between adjacent coil ends, top and bottom, front and rear, is filled with a hard class B material. The idea is to pack the class B windings in tightly but to do it gently.

In recent years class B armature coils have been developed that are insulated completely before any varnish treatment is applied. In this way the insulated material can be applied tightly and snugly. After insulating, the slot sections are clamped, then the coils are vacuum dried, and afterwards impregnated under pressure in a solventless varnish. The coils are finally vacuum drained to remove all excess varnish and then baked. This method produces preshrunk coils that are conducive to tight windings.

Where, when and why are Scotch or class B windings used? *Where* maximum output is required from a given unit, and where operating temperatures exceed safe values for class A insulation, then class B windings take over the job. *When* motors in a plant are constantly roasting out, either because they are overloaded or because the windings dry out, shrink and thus become loose, then class B windings should be substituted. The reason *why* class B windings stand up under these conditions is that they are able to withstand high operating temperatures and other stresses.

There are many applications where class B windings, properly installed, will save maintenance expense, although the initial cost is higher. Maintenance men should face the fact, however, that class B coils require extreme care in winding, and the winding technique must be revised to watch all details and to make every step lead toward a tight, finished winding. In fact after winding a few class B jobs and acquiring careful winding habits, there will be a noticeable improvement in ordinary wiring practice.

Maintenance men are rapidly becoming familiar with these Scotch windings; they find that if properly handled, these windings will become a useful maintenance tool and justify the term Scotch.

Sweat-Solder Fittings Require Careful Installation . . . .

(*Continued on page* 43)

will be found by the soap bubbles blown at the leak. Once the leaks are stopped, the same portable compressor may have the connections to the large compressor reversed and be used to evacuate the system. With a deep vacuum on the system, stop the portable and plug the lines, leaving the vacuum gauge installed for reading.

After several hours at rest, if it still holds the same reading, you are assured that the job is tight. However, after a job is put into operation, I like to make a double check and for this I choose a halide alcohol tester because of its sensitivity. If this indicates no leaks, then I feel satisfied that even Freon, the most expensive and the hardest of all gases to hold, has been securely locked in for a useful life, so far as tubing is concerned.

Fan Service Occupies Dull Winter Months .

(*Continued on page* 43)

cord cables are usually wrapped in colored braid, so that tracing is an easy matter. Before removing the old cord, the color combinations should be recorded on paper, so that the new leads will be properly connected. Another way is to connect the new cord one lead at a time as the old cord is removed. This saves a lot of time because it is not always an easy matter to trace out the field circuits on an old winding.

It is seldom advisable for the small repair shop to attempt to rewind the stator of a small fan motor. If the coils are removable, such as those used on direct-current motors, it may be practical to wind a new set, but if the coils are wound in place it is better and cheaper to order a new stator from the factory. The small bore of most fan motor stators makes the job of winding too tedious for anything but a factory production line.

The blades on fans that have had long use often become tarnished or stained. This is especially true on those that have a brass or nickle finish. At the same time the motor housing and base become dull and scratched.

While the fan is in the shop the blades, base and motor housing should be buffed smooth and clean on a fine wire wheel. After it has been assembled and tested, the whole fan should be sprayed with a good, quick drying enamel or Duco. A new finish for the fan does not cost much in time or material, but to the customer it will appear to be a good job well done.

There is money to be made repairing fans if the repair work is handled in the right way, and the shop that does a good volume of fan repairs will sell more new fans.

Florida Cities Adopt Non-Tamperable Fuse

The following towns and cities in the state of Florida have adopted the non-temperable fuse for their communities, according to announcement from F. J. McGinnis, secretary of the Florida Association of Electrical Contractors and Dealers: Miami Beach, Fort Lauderdale, Hollywood, Daytona Beach, Tampa, (with exceptions), Jacksonville, Gainesville, Davenport, and St. Petersburg.

POWER COMPANY News

Employee Activities Subject of Meeting

MANY leaders of the utility industry of the Southeast are scheduled to address the Employee Activities Committee of the Southeastern Electric Exchange which will meet in Atlanta, February 10 and 11, according to announcement by J. H. Talley, executive secretary of the Exchange. Headquarters for the meeting will be located in the Piedmont Hotel.

Among those who will address the Friday morning session of the meeting and their subjects are: J. O. Speed, supervisor of industrial relations, Alabama Power Company, "Objectives of An Industrial Relations Department"; F. A. Mitchell, vice president and general manager, Virginia Public Service Company, "Employment — Including Intelligence Testing and Classification;" and D. R. Shearer, manager, Tennessee Eastern Electric Company, "Educational Training and Orienting Employees."

A special luncheon meeting has been scheduled for the same day with S. B. Williams, editor, *Electrical World*, as guest speaker. Mr. Williams' subject will be "The Job Ahead for Utility Employees."

Scheduled for the Friday afternoon session: H. M. Pace, vice president, South Carolina Power Company, "Training Employees to Attend to Service, Appliance and High Bill Complaints;" W. I. Whitefield, manager, Appalachian Electric Power Company, "Vacation Policies—To Hourly Rated Employees;" C. S. Thorn, vice president, Birmingham Electric Company, "Pensions and Retirements;" R. B. Grove, claim department, Florida Power and Light Company, "Safety in Employee Relations."

A general discussion of the wage-hour act led by Herman W. Boozer, general auditor, Georgia Power Company, will open the Saturday morning session. This discussion will be followed by an address by J. S. Kerr, assistant to president, Southern Bell Telephone Company, on the subject, "The Right Man for the Right Job."

Of particular interest will be several sound films to be presented at the meeting. These will include "Power of Mississippi," a film prepared by the Mississippi Power and Light Company; "What Employees Think" and "Good Employee Relations," two films prepared by the National Manufacturers Association; and "The Wrong Way," a film prepared by the Southern Bell Telephone.

New Low Rates Announced By Many Utilities . . . .

THE first of the new year brought announcements of reduced electric service rates from many utility companies in the South.

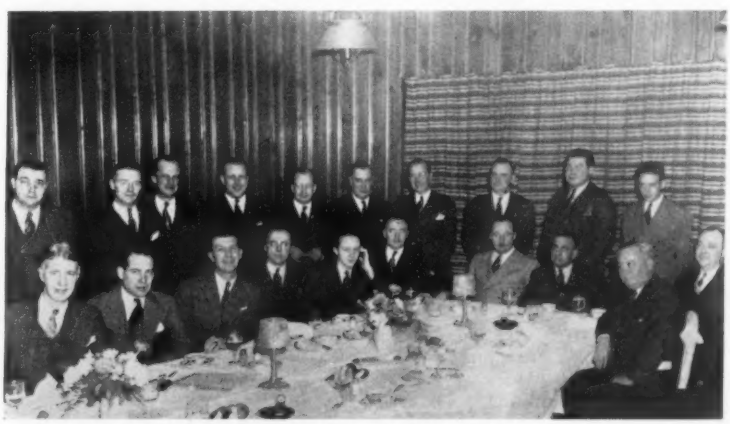
Largest reduction was that announced by Carolina Power & Light Company which will be placed into effect on February 3 and will represent a reduction of approximately $1,000,000 a year. It is estimated that 65,000 North Carolina consumers will save $716,000 a year under the new rate while the balance of the reduction will accrue to approximately 25,000 South Carolina customers.

In addition to residential customers, the new rates will effect reductions for commercial lighting customers, two classes of commercial power consumers, and for textile mills in North Carolina.

The new residential rate provides a charge of 3.9 cents per kwh for the first 50 kwh; 2.9 cents per kwh for the next 100 kwh; 1.9 cents per kwh for the next 100 kwh; and 1.5 cents per kwh for all energy in excess of the above. The minimum charge was unchanged.

* * *

As part of a "two-step" rate reduction on residential electric service, the Virginia Public Service Company announced a reduction effective with meter readings on and after January 1, 1939. According to the announcement, the second step in the reduction will take place on or before October 1, 1939. The combined reductions will result in a saving of as high as 14% for the average customer or from 10



Georgia Group Maps Plans for Modern Kitchen Activity

Manufacturers' representatives and distributors met with utility men and bureau field representative recently to map plans for a cooperative tie-in with M. K. B. program. Left to right, seated: Harry Giles, Graybar Electric Company; C. W. Lehner, Westinghouse Electric Supply Company; O. M. Jackson, Georgia Power Company; Collier Helms, Peaslee-Gaulbert Company; W. J. Morley, Crane Company; R. F. Dotson, Crane Company; J. F. Gordey, Beck and Gregg Hardware Company; W. D. V. Hopkins, Hopkins Equipment Company; Herman Crout, H. C. Biglin Company; J. J. Perry, Economy Electric Supply Company; Standing: E. E. Bocock, Frigidaire; S. M. Davison, Westinghouse Electric and Manufacturing Company; H. A. Smeaton, Georgia Power Company; F. B. Williams, Edison General Electric Appliance Corporation; Howard Peacock, General Electric Supply Company; E. W. Welsh, Monarch Distributor; J. M. Walker, General Electric Company; W. D. Alexander, W. D. Alexander Company; B. F. Weadock, Jr., The Modern Kitchen Bureau; Bob Lowe, Georgia Power Company.

to 20% more kilowatt hours for practically all customers at no extra cost. Total savings to residential electric service customers under the two steps are estimated at $350,000 a year.

* * *

Making its seventeenth rate reduction since 1931, the Florida Power & Light Company gave its thousands of Florida customers a sort of preholiday gift when it announced rate reductions effecting both commercial and residential customers early in December. The new schedule, which became effective on all bills for electric current starting after December 1, is in effect in 180 towns served by the company.

The new rate is a one meter rate, has a low minimum charge and is applicable to all domestic customers regardless of the appliances they use. Under the new rate, the minimum charge in incorporated towns and villages will be $1.25 and in unincorporated areas, $1.50. Use over the minimum bill up to 50 kilowatt hours is available under the new rate at 6 cents per kwh; the next 100 kwh is charged for at the rate of 3 cents per kwh; and all energy used over 150 kwh is billed at 1.5 cents per kwh.

* * *

Final objective of a six-year rate reducing program was announced early in December when the Birmingham Electric Company reduced domestic rates approximately 5% representing an annual saving of more than $80,000 to domestic consumers.

The new rate will include a charge of 3.9 cents per kwh for the first 50 kwh; 2.5 cents per kwh for the next 250 kwh; and 1.5 cents per kwh for all energy used in excess of the above. The rate includes a minimum bill of 70 cents which allows the use of 16 kwh.

* * *

The Gulf Power Company made its residential objective rate effective to all customers as of January 1, 1939. The general application of this rate will result in a reduction of approximately $50,000 per year to domestic customers.

The new rate includes $1 for the first 12 kwh; 5.5 cents per kwh for the next 53 kwh; 2 cents per kwh for the next 134 kwh; $1.25 per kwh for the next 500 kwh; and 1 cent per kwh for all energy used in excess of the above.

* * *

The second rate reduction during the year was announced by R. L. Lindsey, vice-president and general manager of the Durham Public Service Company, just before the close of the year. Total savings to customers through the reductions are estimated at $45,000 per year.

The new domestic rate will include a charge of $1.00 for the first 12 kwh; 4 cents per kwh for the next 38 kwh; and 2.5 cents per kwh for all energy used in excess of the above.

Approximately $30,000 of the annual reduction will benefit residential customers.

* * *

Several rate reductions were announced recently by the Florida Power Corporation which represented annual savings to customers of approximately $45,000.

The last rate change announced was a new commercial lighting rate which included a minimum charge of $1.00 per month permitting the use of 10 kwh. In addition, the rate provides for a charge of 9 cents per kwh for the next 40 kwh; 8 cents per kwh for the next 150 kwh; 7 cents per kwh for the next 800 kwh; 5 cents per kwh for the next 3,000 kwh; 3 cents per kwh for the next 3,000; and 2 cents per kwh for all energy used in excess of 7,000 kwh.

Death Claims Georgia Power Pioneer . . .

Henry Morrill Atkinson, chairman of the board of directors of the Georgia Power Company, pioneer capitalist of the South and one of the foremost electric power and railroad developers of the entire country, died at his home in Atlanta, January 21, after an illness of several months. He was in his seventy-seventh year.

From the time he left Harvard, with a record of distinctive achievements in athletics and studies, his colorful and rugged career included experience as a cowboy and ranch foreman in the West, and then, in Atlanta, he was successively a cotton dealer, banker, railroad builder, street railway developer, electric power pioneer, capitalist, philanthropist and acknowledged leader in his state's and city's cultural and civic endeavors.

Most recent of his widespread and varied accomplishments—completed before his virtual retirement from active business in 1930—was organization of the Georgia Power Company, the network of electric power lines that now serves 545 cities and towns and some 40,000 rural electric customers scattered over 45,000 square miles of Georgia territory.

It is estimated that he was instrumental in bringing more than $200,000.000 of outside capital into Georgia for the development of public utility properties, and an additional $100,000,000 for other enterprises, to take a permanent place in the state's wealth and to work for the development of its natural resources.

Mr. Atkinson's deep and constant interest in development of electric light and power is summed up in a statement he once made: "I would like for my epitaph to read, 'He put to work for Georgia the mountain rivers that had for centuries been running to waste."

Agreement Ends Power Company Fight with TVA

The Tennessee Valley Authority and the Georgia Power Company signed a treaty of peace early in January, ending a two-year conflict which has resulted in a duplication of electric service in some areas and a failure to provide service in other sections.

Preston S. Arkwright, president of the power company, hailed settlement of the two-year-old struggle as the forerunner of a new and greater development of the power industry in north Georgia.

Under the terms of the agreement, which is with the North Georgia Electric Membership Corporation, the NGEMC will confine its operations to rural services in a specially designated area while the privately owned company will serve municipal and industrial consumers. In areas not affected by the agreement the power company will serve all consumers, both urban and rural.

Mr. Arkwright said his company was withdrawing from certain areas and would proceed with development in other sections.

ASSOCIATION Activities

Southwestern Section, IES Meets in San Antonio . .

A COMPREHENSIVE program, which in effect, constituted a short course on late developments in lighting, was presented at the winter meeting of the Southwestern Section, Illuminating Engineering Society, held Friday and Saturday, January 20-21, in San Antonio, Texas. The Gunter Hotel was headquarters for the meeting.

Floyd A. Covington of San Antonio, chairman of the section, opened the meeting with a discussion of outstanding lighting installations in his city.

Others who appeared on the program Friday afternoon and evening were: F. Y. Brightman, Houston, "Lighting for Cotton Classing;" J. B. McMath, Dallas, "New Developments in Luminous Advertising;" Elmer C. Zrenner, Dallas, "Lighting At the Lakewood Theatre, Dallas;" C. S. McMurray, Dallas, "Decoration with Zeon;" W. E. Folsom, Dallas, "Illumination from Signs and Store Fronts;" and H. M. Alexander of Toledo, Ohio, "Technique of Luminous Store Front Designing."

Mr. Alexander is credited with being largely responsible for the development of translucent structural glass which is used for luminous store fronts.

One of the most interesting features of the meeting was the Residence Lighting Forum held Saturday morning, January 21. Among those who participated were: Miss Ethelle Hudson, "New Applications in Home Lighting;" Bartlett Cocke, "An Architect's Viewpoint on Residence Lighting;" Mrs. Claire Craig, "Period Furniture and Lighting to Accompany It;" and George Trotter, "Application of the New Fluorescent Lamps in the Home." Miss Hudson lives in Dallas, the other speakers named live in San Antonio.

The San Antonio meeting was the second held by the Southwestern Section of the I.E.S. since it was raised to the status of a Section from a Chapter.

The Spring meeting will be held in Oklahoma City in April.

Frank Hamm Heads Dallas Electric Club for 1939 . .

The Dallas Electric Club of Dallas, Texas, held its annual meeting in December. The program included annual reports of officers, brief talks by past presidents and the election of new officers and executive committee for 1939.

The new president is A. Frank Hamm, Graybar Electric Co. Other officers are as follows: First vice president, C. F. McAuliff, Texas Electric Railway Co.; second vice president, G. L. MacGregor, Dallas Power & Light Co.; treasurer, M. F. Larmer, General Electric Co., and secretary, Walter C. Blair, Texas Power & Light Co. (re-elected).

A. F. Hamm, left, newly elected president of the Dallas Electrical Club, and G. B. Richardson, retiring president . .

The executive committee is composed of R. T. Shiels, H. K. Handley, G. B. Richardson, W. R. Burns, and Al B. Emerick, new members; and the following hold-over members: G. A. Dyer, R. G. Berle, Glen C. Wasson, W. H. Duls, and J. P. Griffin.

Mr. Hamm, who succeeded G. B. Richardson as president, was advanced from first vice president and had also served as second vice president. He is in charge of city sales for Graybar.

The Electric Club held its annual Christmas dinner dance on the evening of December 19th.

New Orleans Association to Continue Wiring Program .

Rudolph Viener, Jr., construction engineer and superintendent with Edward P. Philips, electrical contractor, was elected president of the Electrical Association of New Orleans at the annual dinner of the organzation held in December. He pledged his efforts to advance the interests of the organization.

Rudolph Viener, Jr.

Mr. Viener and Fred W. Stevens, whom he succeeded, urged continuation of the adequate wiring campaign which has been carried out during the past six months.

Other officers elected by the New Orleans Association are H. E. Meade, executive vice president; George J. Segel, secretary; T. W. Tufts, treasurer, and W. E. Clements, director of publicity.

Divisional vice presidents named were F. B. Stern, wholesale, manufacturers, and utilities division; C. O. Brown, refrigeration division; L. C. Reed, air conditioning and ventilation division; and J. Otto Kaelin, electrical contractors division.

INCREASE YOUR *Money*- KELVINATOR NATIONAL

Sidney Edlund
President Kelvinator National Salesmen's Institute

★ ★ ★

THE Kelvinator National Salesmen's Institute has prepared a remarkably practical study course which combines sales theory and practice so as to be of constant daily use to retail appliance salesmen.

Mr. Edlund, who has already achieved national prominence through his work in training men in a number of different industrial organizations, writes in: "Not only is this Institute project a 'hot' plan, but the 'student body' looks to me the best timber any organizer could be called on to shape. I congratulate *them* on being tied in with a business whose leader thought up this plan: and I congratulate Kelvinator on having the kind of manpower to insure its success.

"The soundness of the whole set-up is reflected in the Institute's personnel. William Rados, for example, brings an unusually broad experience in man-training and building to the Manager's post. He will have entire charge of the preparation of the Institute's program and maintain constant contact with the salesmen.

"If you were only half as sold on this project as I am you wouldn't need urging to write in now for the Institute's booklet."

Solve the 3 Big Problems Faced by the Appliance Dealer Today

- MAKE EVERY SALESMAN PROFITABLE
- GET GOOD SALESMEN
- KEEP GOOD SALESMEN

ALL THIS MAY SOUND like a big order, but those who have seen the Institute program in its entirety have declared it to be the greatest step forward in sales education ever taken by any manufacturer in the appliance field.

First of all, the Institute is staffed with men of outstanding prominence in the field of sales education.

Second, its one job is to enable salesmen to make more money, for themselves and the dealers for whom they work.

Third, it provides not only a complete selling course—covering products, general salesmanship, and the use of promotional campaigns—but offers every salesman a real incentive to finish the course and profit by its use.

And only those dealers who sell Kelvinator household appliances in 1939 will be able to employ this effective, three-edged selling tool.

Kelvinator invites every household appliance dealer who is interested in making more money in 1939 to send for the free booklet and get the complete story. There will be no charge or obligation.

Just tear off the coupon below, and the booklet will be sent to you.

FORGET EVERYTHING YOU HAVE EVER KNOWN ABOUT "SALES TRAINING"

In a month or two, the entire industry will be talking about the Kelvinator National Salesmen's Institute, and you should know the facts—even though you are not now a Kelvinator dealer.

Talk to your Kelvinator distributor—or to his wholesale man—*now*, about the Institute. Or clip the coupon for a booklet that will give you the entire story. KELVINATOR DIVISION, Nash-Kelvinator Corporation, Detroit, Michigan.

KELVINATOR NATIONAL SALESMEN'S INSTITUTE
14250 Plymouth Road, Detroit ES-2.

Please send me a copy of your booklet on the Kelvinator National Salesmen's Institute. I understand that this request places me under no obligation whatever.

DEALER'S NAME.....

ADDRESS.....

CITY.....STATE.....

MAIL THIS COUPON TODAY

Making POWER THROUGH SALESMEN'S INSTITUTE

The Refrigerator That Was 25 Years in The Making

Today Kelvinator is proud to present the climax of 25 years of pioneering achievement . . . the new Silver Jubilee models.

Completely new . . . in design, beauty, and mechanism . . . as revolutionary as the very first electric home refrigerator, which was made by Kelvinator.

Here are just the quick facts. For the full story, talk to your Kelvinator distributor.

The Polarsphere...most efficient of all refrigerating units, cost-cutting and trouble-free. Enough power to keep 5 refrigerators cold.

Dry Storage Bin for Vegetables . . . extra storage space for onions, potatoes, turnips.

Steaks and Chops kept fresh and juicy for days in this glass-topped Cold Chest. Holds up to 14 lbs. of meat cuts.

Speedy Cube Release loosens cubes in a flash—by an easy lift of a lever. You get 72 big ice cubes for 1¢ at national average electric rates.

Twin Glass-topped Vegetable Crispers let you see at a glance inside. Salad greens and vegetables are kept garden fresh for days.

New Wider Front increases capacity without increasing size. No more fumbling and groping or knocked over dishes and bottles.

1914 *Celebrating the 25th Anniversary of the Oldest Maker of Electric Refrigerators* 1939

Silver Jubilee KELVINATOR

Adequate Wiring Featured Topic at IAEI Meeting

THE eleventh annual two-day convention of the Kentucky Chapter of the Western Section of the International Association of Electrical Inspectors opened January 12 at the Hotel Henry Watterson, Louisville, Kentucky.

Most of the opening session was devoted to a general discussion of licensing laws and more rapid methods of electrical inspection in the contracting field. L. P. Dendel, Lansing, Michigan, president of the Western Section, who is also serving as chairman of an international association committee engaged in preparing a model law which would be based principally on a licensing clause for contractors, spoke briefly on this subject, urging legislative measures for the protection particularly of rural communities now practically unprotected.

The scheduled discussions of proposed code changes and Article 300 were postponed until a later meeting, due to the impossibility of obtaining the needed information.

A round table discussion, led by Victor H. Tousley, national secretary from Chicago, was held on State-wide Electrical Inspection Ordinances.

Considerable interest was exhibited in the discussion of "The Edison Electric Institute Proposals for Code Changes" presented by O. K. Coleman, American Gas & Electric Co., and Henry J. Morton, of the Association of Edison Illuminating Companies. Mr. Morton's address was illustrated with lantern slides and eliminated much misunderstanding in regard to the Institute proposals.

A short discussion on fluorescent lighting by Frank B. Lee, illuminating engineer of the General Electric Company, stressed the advantages and beauty of this form of lighting, particularly for illuminated displays.

Friday's session was opened with the awarding of Certificates of Merit to the following electrical contractors: Metz Electrical Company, Southern Electrical Co., Althaus Bros., Henderson Electrical Company, Oechs Electrical Co., W. B. Diecks, William Huber, Marine Electrical Co., Markel Electrical Co., Childer's Electrical Co., Maurice Bornstein, Robert J. Hefferman, Herbert E. Hirchmiller, Raymond James, Link Electrical Co., Kentucky Electrical Repair Co., Electrical Construction Co., Krauth Electrical Co., Theobold Electrical Co., Thirlwell Electrical Co., Wilhelm Schum. Schill Electrical Co., and the Bland Electrical Co. all of Louisville, E. F. Lee of Madisonville, Lambert Grisham of Owensboro, and Jack Sparta of Dayton, also received certificates.

A report submitted by Chairman Roach urged that contractors use safer switches and fuses, and place additional outlets in new buildings to minimize arrangements involving fire hazards. Use of improperly wired appliances was scored, and a simplified system of interior wiring was recommended in the report which was ordered forwarded to the Western Section after approval by the Kentucky Chapter.

R. E. Barry, city inspector for Louisville, was elected president of the Chapter on the slate returned by the nominating committee, which consisted of W. D. Diecks, Louisville; E. M. Nelson, Chicago; and O. K. Coleman, New York. L. K. Kuhlman, Covington, was named vice-president, and V. F. Knadler, Louisville, was re-elected secretary-treasurer. Mr. Barry promised strong support of all aims of the chapter, including an effort to obtain a state inspection law and act to eliminate bids for mechanical work being accepted as a part of a general contract.

The new board of directors includes W. D. Roach, E. H. Rueppel, R. J. Hefferman, and V. F. Knadler, all of Louisville; and Fred Frizzell, Bardstown; Jack Sparta, Dayton; H. S. Day, Cincinnati, Ohio; L. G. Kuhlman, Covington; and Harry Hirshmiller of Covington.

Reports from the membership committee indicated a roll of more than 1.000 members since the organization of the association in 1928.

Delmarva Electric Association Holds Meeting in Dover . .

Ninety-two members and guests of the Delmarva Electrical Association attended the first quarterly meeting of 1939. The meeting was held at the Hotel Richardson, Dover, Delaware.

The afternoon program of the meeting featured the latest developments in fixture and wiring equipment for use with the new fluorescent and Mazda projector lamps. Seven manufacturers displayed their products: The Miller Company, Meriden, Conn.; General Electric Supply Corp., Baltimore; Square D, Baltimore; Colt Noark Company, Philadelphia; National Electric Products Co., Philadelphia; Wheeler Mfg. Co., Boston, Mass.; Bryant Electric Co.

The evening program featured "The Light Conditioning Show," presented by General Electric Co. S. H. Hazelton spoke on the new lamp and lighting developments. Herbert Allen, of the Square D Company, spoke on "Adequate Wiring."

Officers of the association are E. R. Kingery, Dover, president; Jonathan E. Wheatley, Cambridge, Md., vice president; K. J. Miller, Salisbury, Md., treasurer; J. Russell Hopkins, Salisbury, Md., secretary.

Memphis League Installs New Officers . . . .

Election of new officers was the principal business transacted at the annual meeting of the Memphis Electric League held January 6. Among those elected were: President, G. O. MacFarlane, General Electric Company; vice-president, Charles O. Davis, Davis Electric Company; treasurer, Hugh Street, Memphis Electric Company; and secretary, Joe Brennan, Memphis Power & Light Company. The two latter members are veterans of the electrical industry of Memphis having held these offices for 25 years and 20 years, respectively.

Formed 28 years ago and com-

(*Continued on page* 64)

MANUFACTURERS' News

Personnel Appointed for Kelvinator Sales Institute

C. William Rados, who has developed and directed sales training programs for many large companies, has assumed the duties of manager of the National Salesmen's Institute, established by the Kelvinator Division of Nash-Kelvinator Corporation for the training of its salesmen, according to an announcement by H. W. Burritt, vice president in charge of sales.

At the same time, announcement was made of the appointment of Miles H. Ditmer, Thomas L. Craig and Ronald A. Demmer, all with wide and varied experience in sales training activities, as field representatives of the Institute.

C. W. Rados, manager, National Salesmen's Institute . . .

The Kelvinator National Salesmen's Institute, according to Mr. Burritt, is "a school and college for salesmen," offering training courses that are far more complete than any the company has developed in the past.

The Institute's course, he pointed out, will be prepared jointly by its staff and leading retail Kelvinator appliance salesmen. Headquarters of the Institute have been set up at the Kelvinator executive offices in Detroit. Personnel of the Institute will include, besides its manager, Mr. Rados, a number of Kelvinator regional representatives and a council of leading retail salesmen. Members of the council will be chosen annually from among the company's outstanding selling men and they will be paid for their services.

Already announced has been the pointment of Sidney Edlund of New York City, outstanding authority on selling and business success, as president of the Institute, Mr. Burritt said.

Sangamo Celebrates Fortieth Anniversary with Open House

To commemorate the 40th Anniversary of the Sangamo Electric Company, Springfield, Illinois, this company held "Open House" on January 11 for relatives and friends of their employees. By request of the employees, the working hours of that day were arranged to be from Noon until 4:00 P. M. and from 5:30 to 9:30 P. M.

A committee of guides, made up of employees having service records of 25 years or more, routed the visitors through the plant. More than 600 visitors were taken through during the afternoon, while in excess of 4000 visited during the evening hours.

A souvenir booklet describing the company, together with a ticket, was given each visitor by a welcoming committee at the entrance, and after completion of the trip, the ticket was exchanged for a set of plastic coasters bearing the 40th Anniversary seal and trademark.

Signs throughout the plant told the name of each department and the name of the foreman. The more intricate machines were explained with signs and by lecturers. After more than an hour's walk through the various departments, the visitors left the buildings through the engineering laboratories, two blocks from the main entrance.

Frigidaire Prepares for New Product Shows in 33 Cities

Equipped with practically every device known to the theatrical world, including some equipment found only in the most modern stage construction, three separate crews of Frigidaire representatives, each travelling a different direction, were scheduled to leave their headquarters at Dayton, Ohio on January 13th for a four weeks sales convention itineray, carrying the story of 1939 Frigidaire products to more than 20,000 dealers and salesmen throughout the nation. Preparations for the conventions have been in process for weeks, with intensive rehearsals by crew members in effect since December 15th.

Heading the respective crews as leader and master of ceremonies for the convention program will be: Lee A. Clarke, household advertising and sales promotion manager; H. J. Walker, Jr., manager, public utilities division; and Elsworth Gilbert, zone manager and general convention director.

Thirty-three cities will be treated to identical performances in the four-week period.

C. I. T. Opens Sixth Branch Office in Florida . . . .

In order better to serve Lakeland, Fla., and surrounding territory, the C.I.T. Corporation, national sales finance company, has opened an office there, located in the Marble Arcade Building, 133 South Kentucky Avenue. T. E. Barham, who has been connected with the C.I.T. Corporation for three years, comes from the C.I.T. Birmingham office to take up the managership of the Lakeland office.

C.I.T. has over 195 local offices in the United States and Canada,

Sangamo Electric Co. celebrated 40th anniversary with open house

It's going to be a happy year for electric roasters, smiles of these NEMA committeemen would seem to presage. Reading from left to right: Robert Oliver, Westinghouse, chairman of the NEMA plan committee; Walter Schwartz, Proctor, chairman of the electric roaster division of NEMA; Claude Hendon and Marshal Ross, General Electric; Ted Fajen, Nesco; Charles Schwartsbaugh, Everhot; Harold Donnelly, Westinghouse; and Al Caesar, secretary of the electric roaster division, NEMA. They were caught thus beaming over the 1939 electric roaster campaign at a recent meeting in New York.

each operating as a complete sales finance company devoted to the needs and requirements of their respective territories. Lakeland makes the sixth C.I.T. local office in Florida, the older C.I.T. offices being located in Jacksonville, Miami, Orlando, Tampa and West Palm Beach.

Baltimore Electrical Trade Show Opens February 13th

The electrical industry of Baltimore and vicinity is looking forward with keen interest to the Sixth Annual Electrical Show sponsored by the Electrical Manufacturers Representatives Association of Baltimore.

This year the show, which is scheduled to open February 13 for four days, will be held at the Emerson Hotel.

R. G. Montgomery, secretary of the association, reports that the local group now includes 65 members, representing practically every nationally known manufacturer.

News About People

Effective immediately, **Harry M. Francis** has been appointed assistant vice president in charge of sales of the American Steel & Wire Co., subsidiary of United States Steel Corporation.

Mr. Francis has been associated with the Wire Company for 23 years, having entered its employ as a messenger in the New York office in 1915 and later becoming a salesman. After serving as assistant manager of sales at the Philadelphia office of the company, Mr. Francis returned to New York in 1925, and in 1927 was transferred to the Boston office as manager of the manufacturers trade department. In 1934 he became New England district manager of sales, which position he retained until being transferred to the main offices in Cleveland as assistant general manager of sales.

* * *

Charles A. Pierson was elected president of the Standard Electric Manufacturing Corporation, Toledo, Ohio, at the annual stockholders meeting held in December. Mr. Pierson served for many years as president of the Standard Electric Stove Company but following the reorganization of that company under the name Standard Electric Manufacturing Corporation, he served for a short time as vice president in charge of production and research.

Other officers elected at the same time are **H. H. Venable,** vice president and general sales manager; **V. K. Perkins,** vice president; and **E. L. Tait,** secretary-treasurer.

The company enters its 27th year in the manufacture of electric ranges and heating devices.

* * *

Adolph Frankel has been appointed sales manager of special products of the Westinghouse Lamp Division, Westinghouse Electric & Manufacturing Company, according to a recent announcement by Henry J. Hoffman, manager of the special products department.

Mr. Frankel will make his headquarters at the Bloomfield plant where he started work in 1917. He served in various capacities until March 30, 1937, when he was made merchandising manager of the Lamp Division.

In his new capacity, Mr. Frankel will be responsible for sales of Sterilamps, electronic tubes, X-ray tubes, and all other products of the Lamp Division except lamps.

* * *

Walter F. Nelson, formerly associated with the sales promotion department of the Westinghouse Lamp Division, Westinghouse Electric & Manufacturing Company, announces his partnership with **James W. Smith,** effective January 1, in a firm which will serve as agents for several electrical manufacturers.

Mr. Smith has operated as a manufacturers' agent for the past two years and was formerly connected with Graybar Electric Company as a lighting specialist.

The new firm will cover the entire Southeast, representing manufacturers of wire supplies, lighting equipment, specialty appliances and other electrical items. Headquarters will be maintained at 413 Bona Allen Building, Atlanta.

Hotpoint distributors throughout the Southwestern District gathered for the meeting shown here in Dallas, Texas, early in January for a preview of new models and to learn the plans and program of the Edison General Electric Appliance Company, Inc., for 1939. Among the officials from the Chicago office in attendance were: R. W. Turnbull, vice president and general sales manager; W. A. Grove, advertising manager; Clinton Brown, director of publicity; M. H. Beekman, manager kitchen sanitation equipment department; A. H. Jaeger, manager water heater department; D. C. Marble, manager range department; G. H. (Rock) Smith, manager refrigerator department; and H. E. Warren, manager home laundry equipment department. A feature of the meeting was a long distance phone call from G. A. Hughes, president, from Miami, who extended his greetings and best wishes to the distributors and utility executives present.

REVIEW OF NEW APPLIANCES FOR 1939

General Electric

Five-heat Calrod units for all surface cooking, Tel-a-cook signal lights with different color for each "heat", and a triple oven to speed cooking are features of G-E ranges

THE universal language of color makes its bow as a control factor in electric cookery with the advent of a complete new line of electric ranges for 1939, just announced by the General Electric Company.

The decision to use color as a ready indicator of heat intensity in the new ranges was arrived at by G-E engineers simultaneously with the decision to extend the use of five-heat Calrod units to cover all surface cooking requirements of the new models.

Not only is this increased flexibility built into the units on the top of the range, but into the newly designed oven, also, where five different heat applications are being offered for the first time.

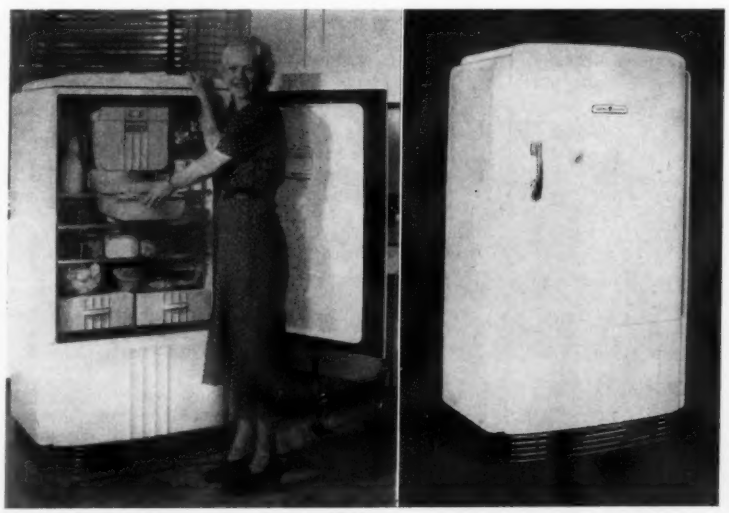
Each surface unit in the new ranges is equipped with a Tel-a-cook light signal, in a panel directly above the respective switch, and each of the five heats for each unit has a color signal of its own. The color message which is flashed on with the turning of the switch not only indicates what unit is in use but what heat is being used.

The oven of the new range, also, has its own Tel-a-cook light system, with indicator located above the switch. In addition to the usual preheat, bake, and broil, the twin-unit oven of the new range has two other adjustments, and the five stages are controlled by a single switch.

The 1939 G-E ranges feature the triple-oven, further adding to the extreme flexibility afforded by the five available heats. Surveys have indicated that 80 per cent of all oven cooking can be done in a small oven, and to realize this economy without sacrificing capacity, the speed oven can be used. The lower heating unit is moved to center guides, cutting the size of the oven in half, and an aluminum "economizer" sheet is placed underneath. Pre-heating to 400 degrees in five and a half minutes, the speed oven can be used for two 9-inch pies, cookies, biscuits, or a complete oven meal.

The master oven, with unit in place at the bottom for capacity oven cookery, affords ample room for two 15-pound turkeys, a large ham, or an oven meal for 12 people. A super-broiler completes the triple oven. The duplex Calrod broiling unit has a stainless steel plate which directs radiant heat downward. Oven shelves give three broiling positions at each shelf support.

A convenient temperature dial for oven-setting is located on the switch panel of the range. The no-stain vent in the center of the top surface, maintains the proper humidity in the oven but keeps the kitchen wall clean because of its location. All shelf supports are streamlined and oven corners rounded making for easy cleaning.



Completely new styling and many new features are incorporated in the 1939 G-E refrigerators. A new cold storage compartment and more flexible control are introduced.

GENERAL Electric refrigerators for 1939 exhibit completely new styling. Adding materially to the utility value of the refrigerator, a newly-developed cold storage compartment providing lower temperature and higher humidity for meat storage has been included in the new models.

The changed styling of the new G-E line is principally noticeable in the fluted door and stainless steel base grille. Piano-type hinges which assure the doors being held in alignment, a new latch handle and escutcheon, and a new nameplate impart increased eye-appeal.

Within the cabinet, the super-freezer door and vegetable and fruit baskets have been redesigned. All shelves have bar fronts and the plastic shelf supports have been streamlined. The cabinet light has been given a new center location, with the porcelain liner recessed to form a reflector eliminating glare and the previous interference with food storage.

A "tel-a-frost" indicator, mounted on the side of the evaporator, is a simple device indicating the proper time to defrost.

Only quick trays with the triple-purpose release, are included in the new refrigerators. Certain models have a large dessert tray with cover and a removable super-freezer shelf. Fruit baskets and vegetable pans are of the sliding type.

In deluxe models a metal shield has been provided to protect the top edge of the unit's compartment door; certain parts of the interior are in aluminum; and a full set of oven-proof pottery dishes is included. These models have an exterior finish of white porcelain.

The purpose of the new cold storage compartment is to provide a low-temperature, high-humidity area,

primarily for preserving fresh meats. Located directly under the super-freezer, the compartment has an interior temperature of from five to ten degrees colder than that of the cabinet proper.

The 1939 General Electric refrigerators are in three series—the porcelain exterior, "PB" group in 5-, 6-, 8-, 12-, and 16-cubic foot sizes; the deluxe "B" line, with Glyptal finished exterior, in 5-, 6-, and 8-cubic foot sizes; and the standard "JB" series in 3-, 4-, 5-, and 6-cubic foot sizes.

The three largest of the latter group have the panelled door and black base characteristic of the 1939 G-E line, and all have the tel-a-frost indicator, quick trays, and improved center location of light. An apartment-house model, of four cubic feet capacity, built to fit beneath the drainboard in a crowded kitchen, completes the line.

All of the new G-E refrigerators are powered by hermetically sealed units with Scotch yoke compressors, protected from the deteriorating effects of air, dirt, and moisture by a welded steel casing. The mechanism operates in a continuous bath of oil which is pressured to every bearing surface, also cooling the mechanism, since after lubricating use it is jetted to the top of the steel casing and trickles down the sides.

A single knob controls the entire operation of the refrigerator. Twelve-point speed control allows a wide range of flexibility in freezing, and moderate refrigeration continues even during defrosting. The stainless steel super-freezer is sanitary and easy to clean.

Hotpoint

FIVE Standard models, from three to six cubic foot capacity; three DeLuxe models, five to eight cubic foot capacity; four Imperial porcelain models, six to sixteen cubic foot capacity, and one six cubic foot Special model, comprise the 1939 line of Hotpoint refrigerators announced by Edison General Electric Appliance Company.

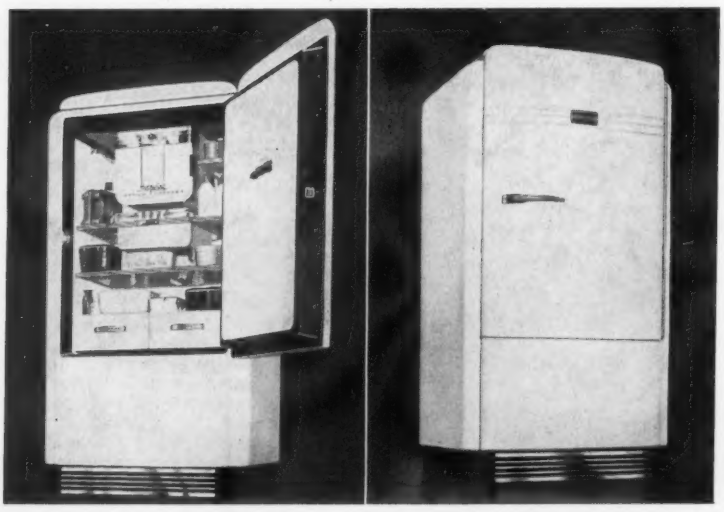
Massive beauty has been combined with streamlined grace to produce a new cabinet design for both DeLuxe and Imperial models. Like all other Hotpoint appliances, these 1939 refrigerators are designed to harmonize with other equipment in the all-electric kitchen.

Gleaming chromium hardware is applied in a manner to please beauty loving eyes. Door handles operate at a finger touch, and are properly designed to avoid catching loose sleeves that may brush against them.

Bonderized all steel cabinets, which will not warp, decay or hold odors, are finished in baked Calgloss with acid-resistant porcelain interiors, except Imperial models, which are porcelain inside and out. Cabinets are heavily insulated with Thermocraft, which is moisture and vermin proof, and will not pack down. Textolite strips are installed around doors and in any position where heat might conceivably pass by conduction.

Hotpoint's five zones of cold continue this year. In the Speed Freezing Zone, the 1939 stainless steel Speed Freezer itself is finished in baked Calgloss, with rounded corners for easy cleaning. A single knob controls the sixteen points of temperature, and a red button at the side of the Speed Freezer indicates when defrosting is needed. Hotpoint's handy Pop-Ice trays again offer the convenience and simplicity of "two cubes or twenty." Some models have removable shelves in the Speed Freezer to make room for a carton of ice cream or frozen foods.

Convenience and flexibility are raised to a new high in the 1939 refrigerators, with the introduction of a new six-way Cold Storage Compartment located directly beneath the Speed Freezer, where temperatures are lowest. The lower portion is a spacious enameled pan which will accommodate large quantities of meat, fowl, or other foods. A large, heavy glass defrosting tray forms the upper portion which may be used for storage, as well as a cover for the pan.



Hotpoint continues the "five zones" of cold in its 1939 line. Of particular interest is the Speed Freezing zone, the Fruit and Vegetable zone, and cold storage compartment

Twelve new models make up the Hotpoint range line for 1939, featuring new improvements for economy and convenience.

Hotpoint's Conditioned Fruit and Vegetable Zone this year has two distinct containers. One, labeled "Fruits" is a wire basket for storing oranges, lemons and other fruits or vegetables having protective outer skins. The other, labeled "Vegetables" is entirely of porcelain enamel, for keeping perishable vegetables.

Hotpoint's vacuum sealed Thriftmaster unit, which never requires oiling, again utilizes forced draft cooling. Automatic motor protection is another feature.

EVERY conceivable cooking need of every market has been considered in the development of the twelve 1939 Hotpoint range models. Three models in the Royal line and four newly styled DeLuxe models care for the top markets, with nearly every advanced feature included as standard equipment. Five Standard models, including the entirely new Metropolitan and Bellwood ranges, bring beauty, convenience and economy with full cooking capacity to the lower price brackets.

Outstanding among new 1939 Hotpoint features, is the double unit Directional Heat Oven, with its Five-Heat Direct-A-Heat Switch, adding a new broiling heat to Hotpoint ranges.

Hotpoint's Select-A-Heat Hi-Speed five heat feature has been added to the Giant size unit for 1939 to give a cooking heat for every cooking need. Royal and DeLuxe models come fully equipped with Select-A-Heat Calrod units, and all Standard models have one Select-A-Heat Calrod in the Utility size.

Every Hotpoint range is designed to harmonize with the complete Hotpoint Electric Kitchen Ensemble. New 1939 styling has been given all DeLuxe models through newly designed hardware, brilliant chromium trim, handsome switch buttons and door handles. DeLuxe models also have a new type pilot light built into the center of the backsplasher to in-

dicate when the oven has reached the desired heat set on the temperature control.

Hotpoint puts a better light on surface cooking this year with the introduction of its new Venetia-Lite. The Venetia-Lite's four louvres distribute soft, glareless illumination over the entire range surface.

A new, easy "in-and-out" switch operates the warming compartment for food or dishes, which is standard on the Salisbury DeLuxe and available as an accessory on other DeLuxe models. Every model except the Milford Standard has the famous Hotpoint six quart Thrift Cooker.

Ovens of all 1939 Hotpoint ranges —both double and single unit—are extra large, completely insulated, with porcelain enamel interiors. Embossed oven shelf supports, an original Hotpoint feature, are sturdy, level, easily cleaned. Strong adjustable height shelves provide complete flexibility of position within the oven. One shelf is reversible, so that it may be raised or lowered an additional inch and a quarter.

Kelvinator

CELEBRATING the Silver Jubilee of the household electric refrigerator, Kelvinator, the pioneer of the industry, this month introduces a line of "25th Anniversary Models."

Four series and a total of twelve models make up the 25th anniversary line. In capacity they range from a three cubic foot size for small apartments to spacious 8 cubic foot models for homes of large families. Despite the many new developments, and other increases in value, the average retail price of the new refrigerators will be lower than in 1938. A special low-price model—an introduction for families of low incomes, and designed and priced to tempt the many thousands of families still using ice boxes to abandon this old-fashioned food storage device— features the line. Unlike many such models introduced in the past, it is large enough (six and one-quarter cubic feet; almost 14 square feet of shelf space) to be an important attraction.

High point of the 1939 Kelvinator presentation is announcement of the "Polarsphere" mechanical unit. a hermetically sealed bit of mechanism so small and so light that a housewife can easily hold it in her hands, and so powerful that engineers claim one unit actually could furnish sufficient cold to refrigerate five of the new Kelvinator cabinets.

Another 1939 Kelvinator advancement for faster freezing, and more efficient refrigeration is the employment of injector type refrigerant distribution in the High Speed Freezer. It sends the refrigerant coursing through the tubing faster, and provides better contact of refrigerant with the tubing.

In design, the new Kelvinators also set a new trend for the home. With beautiful symmetrical cabinets of simple lines, there is no "gingerbread," or excess use of bright metal to offend one's sense of beauty.

The new models appear not to have any doors at all, but it appears that the entire front opens up. The doors extend practically to the edges of the sides and top of the refrigerators. This makes it possible to use every inch of the sliding shelves.

The new functional design also makes for greater accessibility, and visibility. Cabinets are wider and not so deep. Food and containers are within easy reach, even when at the back of the cabinet, and food inventory can be taken at a glance.

In addition to the new mechanical unit, and the new styling and construction, the following features also are a part of the new line:

There are two fast freezing shelves for the rapid manufacture of ice cubes and preparation of frozen desserts.

All standard models are equipped throughout with the new "Speedy Cube Trays," which have a new, two-way cube and tray release. A turn of the fingers releases the ice trays.

All parts of the refrigerators are lighted by twin dome lights, one on each side of the freezing unit.

In the standard models, Kelvinator this year introduces a glass-covered meat keeping compartment, located just below the freezing compartment.

Because of the new design of the 1939 Kelvinator High Speed Freezer, there is much extra room for the storage of frozen foods, packaged ice cream, meat, game and similar foods which require extremely cold temperatures.

Sliding, glass tops make a new convenience feature for the new twin crispers. They make it possible for the homemaker to see the contents of the crispers at a glance, and are so arranged that they provide another shelf for the refrigerator.

Leonard

FOUR series of new Leonards, made up of nine models, are included in the 1939 line. Each model is replete with new features, as well as incorporating notable refinements in cabinet design and refrigerating system.

Center of interest is a new low-priced, six-cubic-foot model to be known as the "Leonard Challenger Six." It will sell at the lowest price ever placed on a Leonard electric refrigerator of this size.

Seven of the new Leonards are finished in Leonard Permalain, and two have exteriors of life-time Leonard Porcelain. All models, cabinets of which have been completely redesigned, feature sturdy and improved hardware and attractively-fluted bases. The latter are slightly "extended", adding to the refrigerator's overall massiveness and solidarity. Welded-steel construction and extra-thick "Leonard Approved" insulation — hydrolene-sealed — are used in all the 1939 Leonard cabinets.

Except for minor refinements, the condensing unit is identical with Leonard's Glacier Sealed Unit of last year. It is a simple, single-cylinder, reciprocating type, with a minimum of moving parts, all of which, including motor, operate submerged in oil.

Significant improvements have been made in the evaporator, which is known as the Zero-Freezer. A new "injector-type" of refrigerant distribution is incorporated, insuring more even, more efficient freezing at all points. The Zero-Freezer's new design permits below-freezing stor-

The 1939 Kelvinator is powered by the "Polarsphere" unit held by the young lady. Below, the convenient interior arrangement and four of the new models

HOW DO YOU FEEL ABOU

IT HAS NO PLACE IN THE LEONARD WAY OF DOING BUSINESS

Leonard "puts on the pressure" where it counts . . . on products and policies that create no cut-throat competition and destructive practices. That's why Leonard dealers stay in business and keep on making money.

SURE—high-pressure selling methods get "results!"

Orders come pouring in . . . sales curves go zooming up . . . everybody, from the salesmanager down to the delivery boy, gets excited.

It's a great party until the "shot in the arm" wears off. Then, it's tough.

For, sure as shooting, there's only one thing the "high-pressured" dealer can do—get out from under, by any method that presents itself . . . price-slashing, cut-throat competition. Then, both he and other dealers suffer.

★ ★ ★

Leonard distributors don't use "high-pressure selling." They make money without it, and so do Leonard dealers.

Leonard distributors believe in letting the dealer set the pace . . . *help* him grow, instead of forcing him.

Dealers *aren't* tacks on maps, but business men with a right to their independence.

Above all, Leonard gives every dealer territory to *grow into.*

Naturally, the Leonard Way of Doing Business has attracted distributors who are sound and amply financed . . . men who long ago learned that their growth depends upon the growth of their dealers.

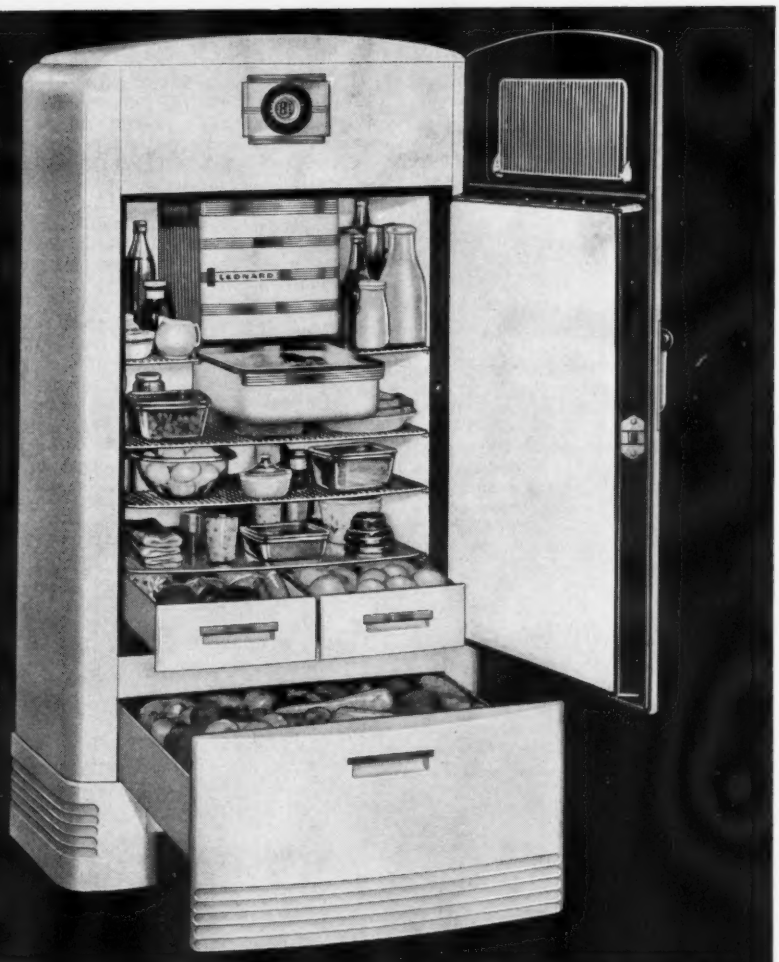
They like this fair and square and *steady* way of doing business. They appreciate that it means reducing dealer mortality, and increasing sales from their outlets.

If this kind of a slate sounds good to you, look up the Leonard distributor nearest you and check this advertisement with a lot of personal experiences—dealer experiences.

And for proof of where Leonard *does* put the pressure—see the great Leonard line for 1939! At least, why not find out? LEONARD, 14250 Plymouth Road, Detroit, Michigan.

YOU BUY AS YOU SELL IN THE LEONARD WAY

BOUT "HIGH PRESSURE"?



SEE IF YOU DON'T AGREE ABOUT LEONARD VALUES

Sum up all the points. The Glacier sealed unit, with a record for low-cost trouble-proof service that is, we believe, without parallel in the industry.

New Zero-Freezer—of stainless steel—which helps freeze cubes faster and also provides storage space for "fast-frozen" foods.

All trays in standard models furnished with time-saving "Ice-Popper" Cube Release.

The Master Dial with built in thermometer, gives customer absolute control over temperature . . . assures perfect service in hot weather . . . cuts down electricity costs.

Extra-capacity dry storage vegetable bin which holds nearly two bushels.

The glass-covered "Meat File," and "Show-case Food File,"for perfect food conditioning.

New 3-way Len-A-Latch.

. . . and a "supporting cast" of many other novel and *salable* features.

Leonard Travels in Good Company

Albany, N. Y.	E. S. & E. Co., Inc.
Altoona, Pa.	Electric Appliance Distributors
Amarillo, Tex.	Nunn Electric Co.
Atlanta, Ga.	Lamar-Rankin Co.
Binghamton, N. Y.	Morris Distributing Co.
Birmingham, Ala.	Magic City Appliance Co.
Boise, Idaho	Bertram Motor Supply Co.
Boston, Mass.	J. H. Burke Co.
Buffalo, N. Y.	Joseph Strauss Co.
Charleston, W. Va.	Eskew, Smith & Cannon
Charlotte, N. C.	Page-Williamson, Inc.
Chicago, Ill.	L. C. Wiswell Co.
Cincinnati, Ohio	Schuster Electric Co.
Cleveland, Ohio	Arnold Wholesale Corp.
Columbus, Ohio	Appliance Distributing Co.
Dallas, Texas	Peaslee-Gaulbert Corp.
Dayton, Ohio	York Supply Co.
Decatur, Ill.	Linn & Scruggs
Denver, Colo.	Hendrie & Bolthoff Co.
Des Moines, Iowa	A. A. Schneiderhahn Co.
Detroit, Mich.	Buhl Sons Co.
Dodge City, Kans.	Mullin Furniture Co.
Escanaba, Mich.	Delta Hardware Co.
Grand Rapids, Mich.	J. A. White Distributing Co.
Harrisburg, Pa.	Knerr, Inc.
Indianapolis, Ind.	United Distributing Co.
Kansas City, Mo.	Federal Distributing Co.
Knoxville, Tenn.	Maytag Appliance Co.
Los Angeles, Cal.	Graybar Electric Co.
Louisville, Ky.	Stratton-Terstegge Co.
Memphis, Tenn.	Harry T. Wilson Co.
Miami, Florida	Major Appliances, Inc.
Milwaukee, Wisc.	Taylor Electric Co.
Minneapolis, Minn.	Enger Supply Co.
Montgomery, Ala.	Mathews Furniture Co.
Nashville, Tenn.	McWhorter, Weaver Co.
Newark, N. J.	E. B. Latham Co.
Newburgh, N. Y.	Shapiro Sporting Goods Co.
New Haven, Conn.	H. M. Tower Corp.
New Orleans, La.	Radio Specialty Corp.
New York, N. Y.	E. B. Latham Co.
Omaha, Nebr.	Paramount Radio Shop, Inc.
Paducah, Ky.	Gleaves & Son
Peoria, Ill.	Cohen Furniture Co.
Philadelphia, Pa.	Motor Parts Co.
Phoenix, Ariz.	Graybar Electric Co.
Pittsburgh, Pa.	J. A. Williams Co.
Plattsburgh, N. Y.	A. H. Marshall Co.
Portland, Maine	Cressey & Allen
Portland, Ore.	Electrical Distributing, Inc.
Providence, R. I.	Ballou, Johnson & Nichols Co.
Richmond, Va.	Graybar Electric Co.
St. Louis, Mo.	Electric Lamp & Supply Co.
Salt Lake City, Utah	United Electric Supply Co.
San Francisco, Cal.	Graybar Electric Co.
Scranton, Pa.	Household Appliance Distributors
Seattle, Wash.	Seattle Hardware Co.
South Bend, Ind.	Cloud Bros.
Syracuse, N. Y.	Morris Distributing Co.
Toledo, Ohio	Electric Range & Equip. Co.
Trenton, N. J.	Adams Distributing Co.
Tulsa, Okla.	Otasco Supply Co.
Washington, D. C.	Southern Wholesalers, Inc.
Wichita, Kans.	McKelvey's
Williamson, W. Va.	Persinger Supply Co.

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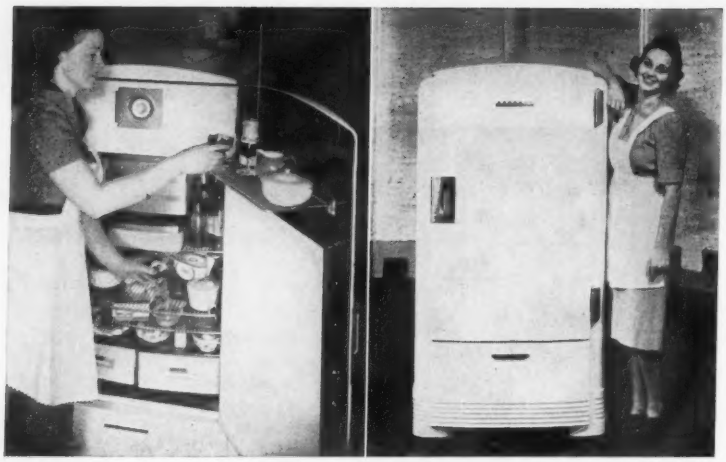
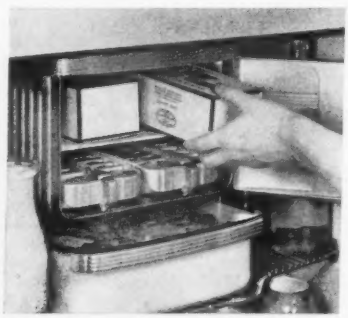
Y of Doing Business



Significant improvements have been made in the evaporator of 1939 Leonard models. Known as the "Zero-Freezer," it is said to insure more even, faster, efficient freezing. Shown above, the new "open throat" door, special rearranging shelf, and the new styling. Below, the cold storage compartment . . . . . .



age of packaged ice cream, "fast-frozen foods" or quantities of fowl or game.

In most models, all ice trays are of an improved "Ice-Popper" type, with both tray and grid of anodized aluminum. In the three models in the 1939 "special" series, half of the trays are "Ice-Poppers" and half have rubber grids. A new two-way, lever-action tray release also is featured on most models.

Prominent again among Leonard features is the Master Dial, an improved type of cold control that not only permits "finger-tip" regulation of freezing speeds but also enables the user to get exactly the amount of refrigeration she desires at the lowest possible operating cost. It incorporates an attractive thermometer. Also notable among the improvements are a handy rearranging shelf —folding type—on the door; and an unusually large Vegetable Bin. The latter slides easily on steel "tracks", and offers convenient dry-storage space for nearly two bushels of potatoes, onions, or other vegetables.

Most 1939 Leonards, for example, have a plate-glass-covered Meat File, scientifically located to insure proper preservation of as much as 14 pounds of meat at temperatures slightly above freezing.

A majority of the 1939 Leonards also feature a Showcase Food File that ocupies the entire bottom of the cabinet. In "P" models, this Food File is made up of two roomy Crispers; in "L" models the Food File has one Crisper and one Fruit and Dairy Drawer. The top of the Food File is one-piece plate glass.

Greater food chamber accessibility has been obtained by Leonard engineers by incorporating "open throat" door opening and a straight-side food chamber in all models, thereby eliminating the space-consuming "rolled edge" between door opening and food chamber.

Westinghouse

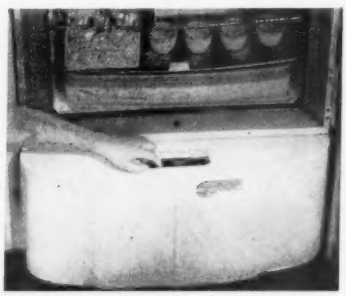
IN its 1939 line of refrigerators, Westinghouse has concentrated on only 14 new models as compared with 20 last year. The results are improved units covering the gamut of refrigeration demands from a 3.33-cubic-foot capable of freezing 44 ice cubes to a 19.2-cubic-foot refrigerator with a capacity of 148 ice cubes.

All but one model in the new line include "Eight-o-Cube" ice trays and all are finished in either "Du Lux" or white porcelain. The four models from H-3-39 to and including H-6-39 are equipped with moonstone white chilling tray, two ice cube trays, a multi-service tray, and eight-point temperature regulator.

Six models from series A-5-39 to E-8-39 feature True-Temp cold control, the Humidrawer, automatic interior lighting, built-in door thermometer, sliding Adjust-o-shelf, Meat Keeper and refrigerated shelf. The number of ice trays varies with the model.

The S-6-39 model finished in "Du Lux" has a 6.2 cubic-foot capacity and is equipped with two small ice trays, a small multi-service tray and a refrigerated shelf, controlled by an eight-point temperature regulator.

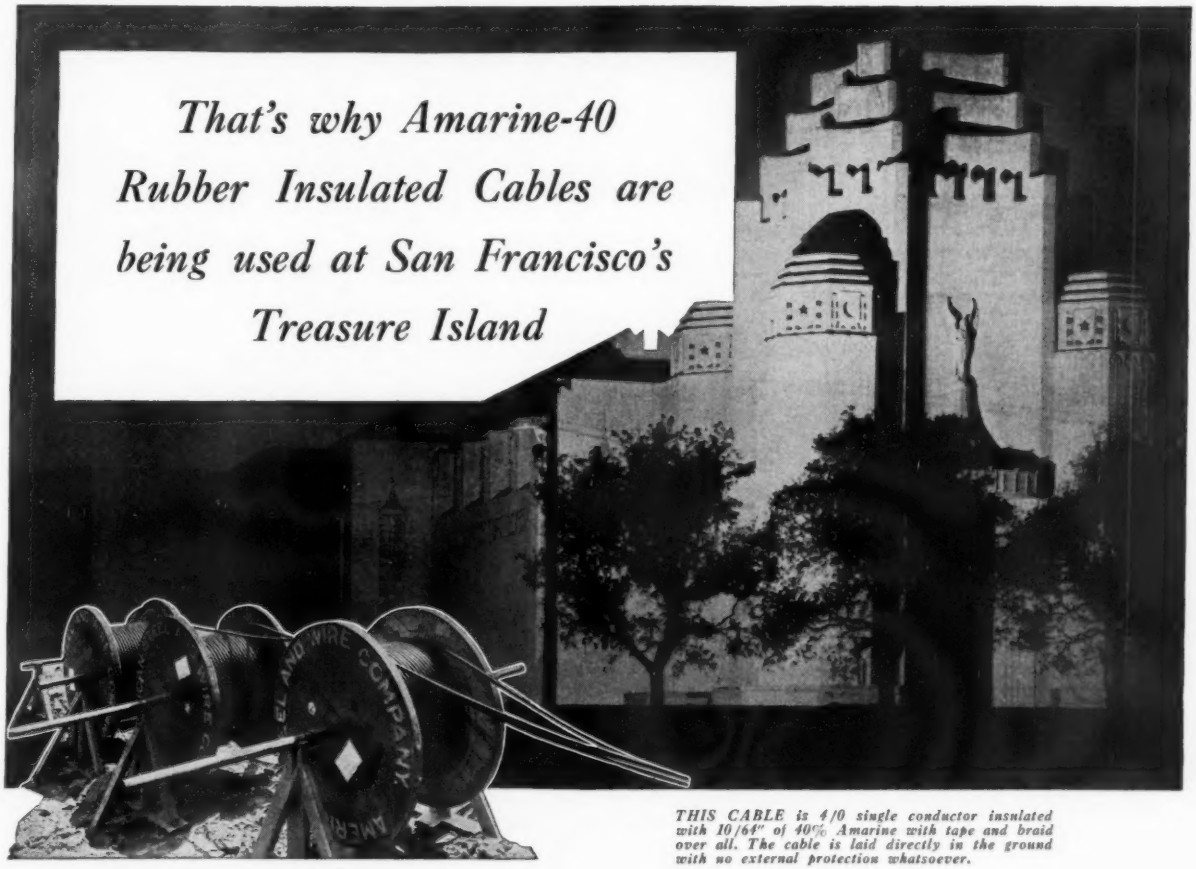
The largest member of the 1939 family has a 19.2 cubic-foot capacity with an output of 236 ice cubes. Its freezing unit includes eight Eject-o-Cube trays, two multi-built-in porcelain crisp service trays and two refrigerated shelves. The cabinet equipment includes two Meat Keepers, built-in utility keepers, satin finished froster basket, two eight-



Above, the new "True-Temp" control with which Westinghouse refrigerators will be equipped for 1939. It maintains a constant temperature in box, regardless of kitchen temperature. Also shown above is the new Humidrawer and the separately suspended glass cover serving as an additional shelf. Below, the young lady demonstrates the new "Ezy-Latch." The flexible interior arrangement adds to the convenience of this line. . . . .

Lovely to Look at . . . but

A MIGHTY TOUGH SPOT FOR BURIED CABLES



THIS CABLE is 4/0 single conductor insulated with 10/64" of 40% Amarine with tape and braid over all. The cable is laid directly in the ground with no external protection whatsoever.

TREASURE ISLAND, the site of the GOLDEN GATE International Exposition is "made land." This beautiful spot was literally pumped up from the bottom of the sea. The soil which composes Treasure Island contains quantities of salt and other deleterious substances. Where could one find a spot that offered tougher conditions for cables to resist?

The Engineers of the Golden Gate International Exposition thoroughly investigated rubber insulating compounds for use in their buried feeders which must supply the various buildings and equipment on Treasure Island. The result was that they specified Amarine 40 or its equivalent and purchased a large quantity for this service.

Amarine-40 is an insulating compound designed especially for cables operating under water without protection of lead or other water-proof coverings. Its outstanding characteristics are low water absorption, low specific inductive capacity, good aging qualities and high insulation resistance. Amarine compound is still serving in some of the earliest installations of non-leaded submarine cable. Its excellent properties were the reasons for the Exposition Engineers' decision to use Amarine-40 for this severe service.

AMERICAN STEEL & WIRE COMPANY

Cleveland, Chicago and New York

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

point temperature regulators.

The "True-Temp" control will maintain a constant temperature after it has been set at any point between 34 and 50 degrees above zero Fahrenheit. In addition, it is capable of producing extra-fast freezing at as low a temperature as 20 degrees below zero in the evaporator.

The combination of sound-proofing insulation, a hermetically sealed compressor, elimination of belts and gears, and three-point cushion rubber mountings has suppressed operating sounds to a whisper. The sealed compressor shell locks out all mechanical trouble and locks in efficiency and motor noise. The "Economizer" unit has been made freer of vibration than ever before, by mounting two feet of the unit on cushion rubber at the bottom and suspending the condenser on a third mounting. The complete unit is enclosed in a sound-proofed chamber insulated with "Arborite" and "Kersey Jute."

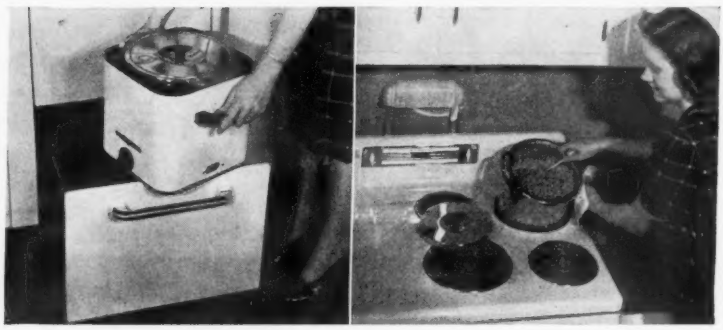
In addition to the refrigerating coils which surround the evaporator in all 1939 models, some of the new Westinghouse refrigerators also contain a refrigerated shelf through which the refrigerant is routed to provide even greater cooling surface and rapid freezing of ice cubes.

One of the froster shelves in this year's models is removable, providing extra freezing space for frozen fruits and desserts, or storage space for four quarts of ice cream.

The porcelain interiors of all 1939 models are so designed that they provide 10 per cent additional shelf space for the equivalent cubic-foot area in the 1938 models. At the same time, the designers have enlarged the Westinghouse Meat Keeper so that it holds 15 pounds of meat as compared with 10 pounds in the previous models. Because of its special construction, location and all-way circulation of cool air, the Meat Keeper maintains a temperature four degrees lower than the rest of the storage space and retains 85 per cent humidity.

A spacious Humidrawer, a movable storage compartment in the bottom of the refrigerator, performs the same protecting duties for vegetables and fruits that the Meat Keeper does for meat. In the 1939 models the transparent glass cover of the Humidrawer is independently suspended so that the drawer and cover may be moved separately. The glass top serves both as a bottom shelf for the food compartment and as the top and humidifier of the Humidrawer.

The full-vision door affords greater accessibility to the storage shelves and harmonizes with the rounded corner, single-piece, steel construction of the rest of the cabinet which is solid to the floor. An indented toe-well of black steel at the bottom is comparable to the solid foundation of a modern building. The door is equipped with two double ball-bearing steel hinges which are chrome-plated to a satin finish. Its "Ezy-Latch" door handle works three ways to open the door by a push or pull to the right, left or outwards. It is large enough to be operated by the elbow.



Economy and convenience are the features stressed in the Westinghouse range line for 1939. At the left above, the "Econo-Cooker," a portable cooker with temperature control. It will cook a complete meal for five people at a cost of a penny. At right is the deep-well "Economy Cooker" that greatly reduces cooking costs. It is standard equipment on most models. Improved automatic controls and a new super-oven with three elements are outstanding features of the new line. New improvements are announced in the Corox heating units, in design and materials, which results in increased efficiency. . . . . .

EIGHT models are presented in the Westinghouse range line for 1939. Among the new features incorporated is the introduction of Columbium alloy for the solid steel top of the Corox heating units. Columbium alloy resists corrosion, heat, and carbide precipitation at high temperatures, eliminates scale formation due to change of internal molecular structure, and consequently has a longer life than most metals.

Other features of the 1939 line which contribute to the economy of electric cooking are:

The Corox "Economizer" surface unit which cuts monthly electric cooking costs about 18 per cent and reduces the cost of cooking some foods as much as 46 per cent. By flattening the formerly oval radiating ribs in the metal-topped heating units, the engineers have enlarged the metallic contact with the bottom surface of cooking utensils, and so increased heat output.

Increased wattage in the new super-oven reduces the current operation time to nine minutes out of the cooking hour as compared with 12 minutes in the 1938 ranges.

The super-oven now contains both a top and bottom heating element plus a separate broiling element, providing two distinct oven heats. The bottom unit has an output of 3,000 watts, the top 1,000 watts, and the broiler 3,000 watts. As an input of only 600 watts is required to maintain the oven temperature at 400 degrees Fahrenheit, the addition of the extra 1,000 watts this year has greatly reduced the operating cycle of the oven.

The "Economy Cooker" and the "Econo-Cooker" — modern electrical versions of the Dutch Oven—bring the cost of preparing a complete meal down to approximately one penny's worth of electricity.

In conjunction with the more efficient broiler heat element, the home economists of Westinghouse have designed a new "Menu Master" broiler pan, made of aluminum so that it is one and one-half pounds lighter than conventional pans. As a broiler it has a 12-chop capacity; with the grill removed it becomes a utensil for roasting or cooking escalloped dishes and puddings. The bottom is

round and designed to fit the eight-inch surface Corox unit, converting the broiler into a gravy maker.

Signal lights, clocks, automatic time controls, thermostats and "Minute Minder" signal bells have harnessed this electric servant to the will of the cook.

Baking has been reduced to setting the single dial oven control, which automatically turns on the current and sets the thermostat at the desired temperature.

In preparing baked or roasted foods which are known to require a certain time to cook at a constant temperature, the operation is even simpler. Set the time control and the oven will be turned on and off at the pre-determined moment.

The "Minute Minder" stands watch over surface cooking on top of the range. This device rings a bell to signal "time's up" for dishes requiring less than 60 minutes.

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Wholesaler's Activities

Supply Company Announces Personnel Changes . . . .

Among recent changes in personnel announced for the southeastern district of Westinghouse Electric Supply Company is the appointment of J. H. Campbell as division manager, Carolina Division, with headquarters in Charlotte. Mr. Campbell has been associated with the Westinghouse Electric Supply Company since 1926, his first four years being served with the Indianapolis brance. Since 1930, and up to his recent appointment, he was attached to the Detroit branch.

Stephens R. Clark was recently appointed as apparatus salesman for the Atlanta territory. Mr. Clark started work with the Westinghouse Electric & Manufacturing Company following his graduation as a mechanical engineer from Clemson University in June, 1937. More recently he was employed in the warehouse and office of the Supply Company in Columbia, S. C.

Edgar Jones was recently appointed as merchandise territorial representative in Columbia, S. C. He was formerly engaged in sales promotion work for the Virginia Electric and Power Company at Norfolk.

Perry-Mann Opens Charleston Branch Office and Warehouse

To better serve the electrical trade in the Charleston territory, the Perry-Mann Electric Company of Columbia, S. C., announced the opening of a Charleston branch on January 15.

The new branch, which will be located at 163½ Meeting Street, will carry a complete stock of electrical supplies and appliances.

Graybar Announces Changes In Organization . . . . .

Effective January 1, 1939, the following changes in organization have been announced by the Graybar Electric Company:

The branch house at New Orleans, Louisiana, formerly in Atlanta District, will be transferred to the Southwestern District.

The branch house at Knoxville, Tennessee, formerly in the Cincinnati District, will be transferred to the Southern District.

New Appliance Distributor For Birmingham Announced

A new wholesale distributorship has been established in Birmingham by the Magic City Appliance Company at 2104 First Ave., North. The concern has the distributorship for North Alabama for Leonard electric refrigerators, for all Alabama for Apex washers and ironers, and will also distribute Standard and Electromaster electric ranges. A line of gas ranges will also be carried.

Officers of the concern are E. H. Abernathy, president, formerly with E. R. McDavid & Company; B. G. Chew, vice-president, and Mayo Manasco, secretary.

Leonard Refrigerator Distributor Appointed in Memphis . . .

Harry T. Wilson, Inc., Memphis, Tennessee, will distribute the Leonard line in northern Mississippi, western Tennessee and northeastern Arkansas, according to announcment by Ray Legg, general sales manager, Leonard Division, Nash-Kelvinator Corporation.

555, Inc., Announce Two New Electrical Lines . .

555, Inc., automotive and electrical supply jobber of Little Rock, announce their appointment as state distributor for the complete line of Knapp-Monarch table appliances. In addition, 555 is state distributor for the entire Kelvinator line and Progress vacuum cleaners. Frank Burk is manager of the household appliance division.

Association Activities

(*Continued from page* 52)

posed of those identified with the advancement of the interests of the electrical industry, the Electric League has 55 members and is known as one of the oldest civic organizations in Memphis.

Richmond League Program Features Adequate Wiring .

Boyd A. Probert, district manager of the General Electric Supply Company, was elected president of the Electrical League of Richmond at the annual meeting of the organization, held early in January.

Other officers elected were: Elbert T. Magruder, plant superintendent, Chesapeake & Potomac Telephone Company, vice president; J. S. Hamilton, agricultural engineer, Virginia Electric & Power Company, secretary; and C. V. Pemberton, of M. A. Pemberton & Brother, electrical contractors, treasurer.

Following the reports of officers

and standing committees, Charles Millhiser, III, of the Virginia Electric & Power Company, spoke on "Some National Aspects of the Adequate Wiring Program" in which he pointed out the progress made throughout the country in obtaining better wiring conditions for the home and the expansion to be made in this activity during 1939 to include commercial and industrial institutions as well.

Novel Lighting Fixture Proposal Eliminates Misunderstandings .

(*Continued from page* 22)

Z. Hirsch, owner of the Oklahoma Electrical Suply Co., said that the plan has materially helped his firm in obtaining and holding business. It satisfies the customer for he can tell at a glance that he is getting the type of fixtures ordered, in the proper numbers. The plan also reduces the number of complaints due to misunderstanding as to the types and costs of fixtures to be installed. Mr. Hirsch said.

Low Cost of Electric Cooking Theme of 1939 Campaign . .

(*Continued from page* 11)

signed to carry utility or dealer signature, tie right in with the national advertising, too. A full set of radio spot announcements—from 20 to 100 words—give dealers and utilities complete material with which to go on the air.

Manufacturers are enthusiastically co-operating in the campaign by supplying newspaper mats that also bear the "Guess Again" idea. The Modern Kitchen Bureau's meal-planning book—"Meals Go Modern Electrically," is another sales tool to be used.

This year, again, the Bureau gives sales training the special consideration that it merits by making available to dealers and utilities a point-by-point Selling Guide that gives retail salesmen a sure-fire way of putting across the story of low-cost electric cooking.

The whole campaign, complete in every detail, has been set in motion. Already in the mail are complete plan books, outlining the campaign minutely, suggesting ways in which dealers and utilities can get the most benefit from the tremendous amount of sales stimulus created for them.

Everything is set for a big year for electric ranges in 1939! Canny dealers and utilities everywhere are climbing right on this cannonball express that's headed for greater sales, greater revenue—and they're whooping it up for their own electric range spring showings in April, May and June!

Should Utilities Continue Appliance Merchandising

(*Continued from page* 10)

sell extended use of electric cookery and our own electricity.

If, as utilities, we continue aggressively to sell appliances at standard prices and terms and do it at a fair merchandising profit, good dealers can and will be developed by manufacturers and jobbers. If, at the same time, we aggressively and creatively sell the need, value and cheapness of electric service, the volume of appliance sales and the volume of kwh sales at better load factor will be greater and grow more rapidly than if we, armed, or rather disarmed, with some apparent merchandising advantage, go it alone.

If, in fair competition with es-

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+ up-to-date design
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CONVENIENT TO USE!
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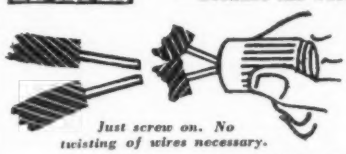
This *modern way* for making wire joints wins the wiring jobs —because the work is cleaner and neater; IDEAL "Thread-on" Wire Connectors eliminate *solder, tape* and *open flame; No scorched ceilings or walls are left after the job is done.*
The Connector is screwed on just like a nut on a bolt, pressing clean threads into the wires and forming a joint that is *better electrically, stronger mechanically.*

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Available in a variety of sizes for joining from 2 No. 20 to 3 No. 10 wires.
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tablished dealers, we do not make a fair profit by aggressively selling appliances let's give it up and spend all our time and talents on the sale of our service and the promotion of the sale and use and extended use of appliances. We know that our service is valuable, dependable and cheap. Selling it is so much worthwhile. If we sell it on its merits, our customers will buy appliances from some established and reliable outlets, whether we merchandise appliances or not.

Dealers Play Important Role In Lighting Campaign . .

(*Continued from page* 6)

The second phase of the campaign was an activity for the Alabama Power Company's merchandise sales department. This activity included the sale of I. E. S. lamps and lamp bulbs only. The quotas established for all six divisions of the company were 1,000 lamps and 50,000 lamp bulbs. The success of the activity is indicated by the fact that actual sales amounted to nearly twice the quotas established. In addition to the regular commissions and bonus payments, prize trips to the Sugar Bowl game in New Orleans on January 2 were offered as a sales incentive.

The third phase of the activity was a special campaign for Alabama Power Company lighting sales personnel. The equipment featured in this campaign included Mazda lamp bulbs, I. E. S. type lamps, residential drop cord fixtures, and commercial type adapter unit, including permanent fixtures for office and store interiors.

The residential and commercial lighting specialists who participated in this phase of the activity were not eligible for commission on merchandise sales but received credit for both company and dealer sales to customers in their territory.

These specialists were charged with the responsibility of making certain that all company employees and dealers handling lighting equipment in their respective territories were informed as to the details of the campaign. They called on more than 16,500 residential customers and 3,000 commercial customers with a view of assisting them in improving their lighting conditions and prepared a daily list of prospects obtained from these calls which were distributed to all local dealers.

Each of the company's home lighting specialists and each commercial lighting engineer was assigned an individual quota for the campaign period. Trips to the Sugar Bowl football game as well as cash prizes were awarded to lighting specialists who exceeded their quotas by the greatest percentages.

Much of the success of this campaign is attributed to the advertising and publicity which supported it. The Alabama Power Company ran a comprehensive schedule of newspaper advertisements in both daily and weekly newspapers throughout the state and a considerable amount of space was also contributed by lamp manufacturers and distributors.

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Hotel Tampa Terrace . *Tampa*	3.00 *up*	
Hotel Floridan . . . *Tampa*	3.00 *up*	
Useppa Inn . . . . . *Useppa Island*		11.00 *up*
Gasparilla Inn . . . . *Boca Grande*		11.00 *up*
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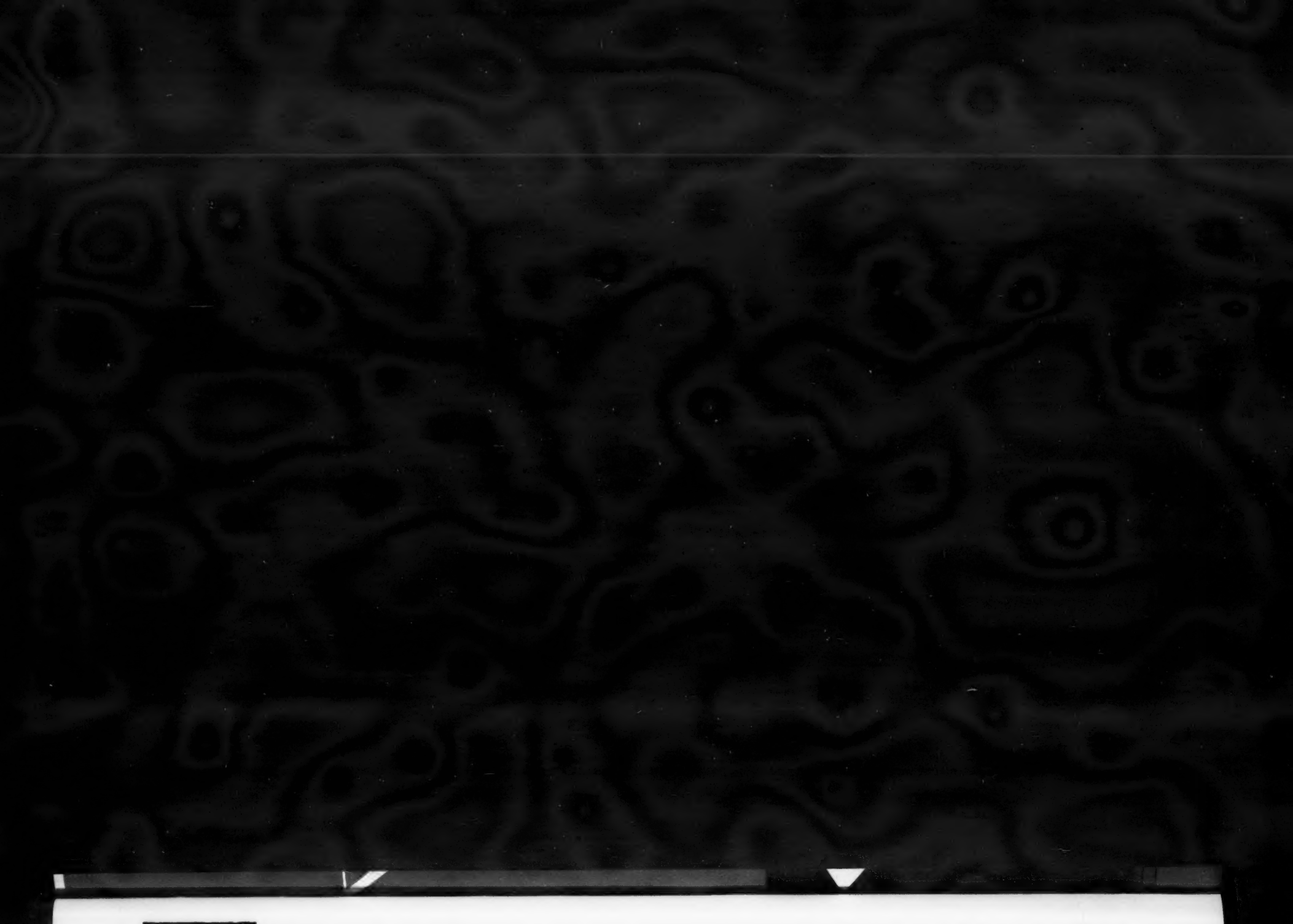
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